

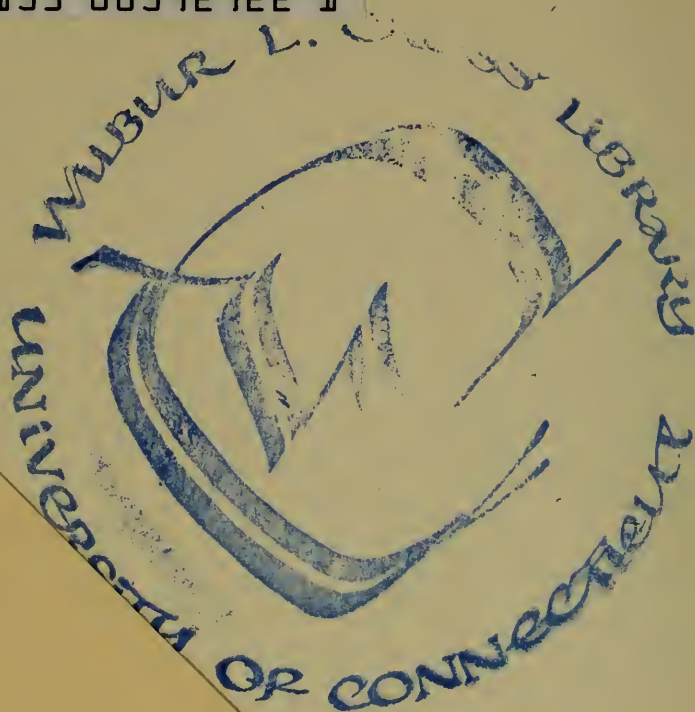
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Boy's book of physical fitness.



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The Boy's Book of Physical Fitness

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The Boy's Book of Physical Fitness

by HAL G. VERMES

ASSOCIATION PRESS

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NEW YORK

The Boy's Book of Physical Fitness

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Introduction

THIS IS A CONCISE HANDBOOK on the physical aspects of fitness. While recognizing the numerous facets which make up the totally fit individual, the emphasis is on physical fitness which has been declared by C. B. Wilkinson, famous coach of the Oklahoma "Sooners" and Director of President Kennedy's Program on Youth Fitness, as the basis for total fitness.

Certainly to the young man, the physical aspects of fitness are the most appealing. He admires the outstanding athlete and aspires to athletic excellence himself. He takes pleasure in the skillful use and development of his body, and in so doing he reaps the benefit of strength, skill, agility, and endurance. But he also develops the qualities of aggressiveness, a competitive spirit, and a will to win, properly balanced by fairness

towards his opponent, the ability to try again when he loses, and the exercise of good sportsmanship.

Theodore Roosevelt expressed the philosophy of sport in these words: "Don't foul; don't flinch; hit the line hard." The contributions of physical fitness toward the rounded personality have been well expressed by Fred V. Hein, Ph.D., in his article "Not Just Exercise," published by the American Medical Association, in which he says:

When physical education activities are enjoyable the stresses and tensions to which many children are subjected today are relieved. The child has an opportunity to express himself physically and to gain pleasure through skillful performance. He learns teamwork for the good of the group and he also learns the value of individual effort so that the group may succeed in reaching its goal.

In this book will be found good discussions of exercise, diet, personal hygiene, sports participation, and the problems which assail the growing boy, namely, alcohol, tobacco, and sex.

Any boy should benefit from reading this book and tailoring its principles to his pattern for living.

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Consultant to the
National YMCA Physical
Education Committee

Chicago, Illinois

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chapter 1

Mind Over Muscle

NOT EVERYONE wants to become an athlete, but every man wants to be athletic—as strong, muscular, robust, and vigorous as his physical make-up permits. An athlete trains to take part in various sports and games. An athletic man trains to take a full part in life itself. And because he keeps himself in good physical condition, his chances for a good life are much improved.

We are now entering the Space Age. If man is to explore the universe, he must, first of all, be in perfect physical condition. Astronauts in training are put through a very strict regimen of diet and exercise. They run, play handball, water ski, and play golf and other games in a continuing sports program. They trim down their weight until there is not an extra ounce of fat.

No athlete trains with more vigor than these astronauts who comprise the vanguard of man's flight into outer space.

Scientists predict that men will be stationed on the moon by 1975. At an annual dinner of the Explorers Club, the members were served unusual dishes as an example of what strange foods space explorers might have to eat on a satellite or planet. Among the odd items on the menu were roast capybara, which is a large South American rodent, iguana tails, filets of boa constrictor, and Alaskan seal flippers.

Even in the Space Age, most people will go through life on Mother Earth. But they, too, should keep themselves in good physical condition. Former President Dwight D. Eisenhower and President John F. Kennedy have both emphasized the importance of a healthy, vigorous nation. In the spring of 1961, Charles B. Wilkinson, head coach of the University of Oklahoma's football team, was appointed director of a national youth fitness program. "Physical fitness," he said, "is the foundation of moral fitness. The major problem," he added, "is the general acceptance on the part of the public to see their children physically fit."

Director Wilkinson affirmed the role of the parents. However, young people must share that responsibility. The development of a good physique is principally up to you. Your parents, physical education teachers, club leaders, and the medical profession are glad to do all they can to help. But the only one who can insure the success of a personal physical fitness program is the man you face in the mirror each day.

Being in good physical condition is an accomplishment in itself. But it is also preparation for a purpose. The habits of health acquired during the years of growth become a reservoir of strength throughout life. Physical fitness is not something that is here today and gone tomorrow. Barring unforeseen events, if you learn certain muscular skills, they tend to remain with you. And you can enjoy them from the day you begin. The first morning you go through conditioning exercises you feel refreshed. Your body begins to tingle with vitality. Your nostrils dilate as you breathe deeply. Your sleep-filled eyes widen and shine.

As you continue your physical fitness program, the benefits become increasingly evident. The daily calisthenics tone up your system and you are less easily fatigued. Your muscles increase in size and power. Your chest widens, and your posture improves. Your reflex actions quicken like those of an athlete who is nimble on his feet and can make full use of his explosive energy. You make a finer showing in sports and games. You feel better and look better. When you are in top condition, you take more interest in the world around you. Life becomes an exciting and enjoyable experience. You are on your toes, ready to grasp the opportunities which come your way, in school, at play, at work, and in social life. All of these assets—and more—can be yours by following a physical fitness program.

There are certain characteristics which are inherited. Among them are the cast of your features, the color of your hair and eyes. Your skeletal framework may be small, medium, or large, and you cannot change it. If

you are destined to be tall and called "Slim" by your friends, or below average height and called "Shorty," there is nothing you can do about it. But don't let inherited physical traits disturb you. Whatever they may be, accept them without complaint. Any man can improve the body he possesses. Even one who may, unfortunately, be physically incapacitated in some way can, with the approval of his doctor, do simple exercises, and perhaps participate in certain sports. Handicaps can be overcome or circumvented. War veterans with various permanent injuries play baseball, basketball, and golf, and join in other active games. Any physique can be strengthened and made healthier.

Begin Building up Your Body Now

Walt Kelly's famous cartoon strip is enjoyed by millions, from eight to eighty. In one of them, Porky the porcupine says to Pogo: "Why do so many people sit around waiting for something to start?" It is true that some folks seem to just wait for things to happen. But the fellow with "git up and go" isn't satisfied to twiddle his thumbs. He is on the mark at the starting line. And the best time to begin a physical fitness program is in the growing years, when everything is in your favor.

The only way to start is to make up your mind to it. Reflect on the many advantages, present and future. Your mind directs your muscles. You are the "boss man" in charge. Whatever you put your will to, you can, within reason, do. Life is full of challenges, and many a man has met and conquered them. The first and most fundamental is the health and development of the body.

Once you have that, you are well fitted to meet the others.

Perhaps you have already chosen your career in life. You may want to be a construction engineer, or go into electronics, business, or one of the professions. Maybe you dream of sailing the seven seas. Whatever it is, you will be better prepared for it if you condition your body now. Meanwhile, you can enjoy life more fully today. The program outlined in this book is a simple one. Its suggestions are drawn from the recommendations and experience of physicians, nutritionists, dieticians, and many authorities in the field of physical education. They are all interested in the health and welfare of the younger generation. But they can only achieve results through you. They can help, but yours is the responsibility. Have faith in yourself as they have confidence in you, and you will find that the rewards are beyond measure.

Seven Ways to Physical Fitness

What does a physical fitness program consist of? First of all, it must be well rounded. You can't expect to get maximum results if you omit one of the essentials. A fellow who exercises but doesn't get enough sleep will yawn half the day and find it difficult, if not impossible, to concentrate on his studies. The chap who eats properly but doesn't exercise will be sluggish and very likely put on too much weight. There are seven factors which enter into a balanced program:

1. Medical Check-ups
2. Diet

3. Personal Hygiene
4. Exercise
5. Rest
6. Sports and Games
7. Social Recreation

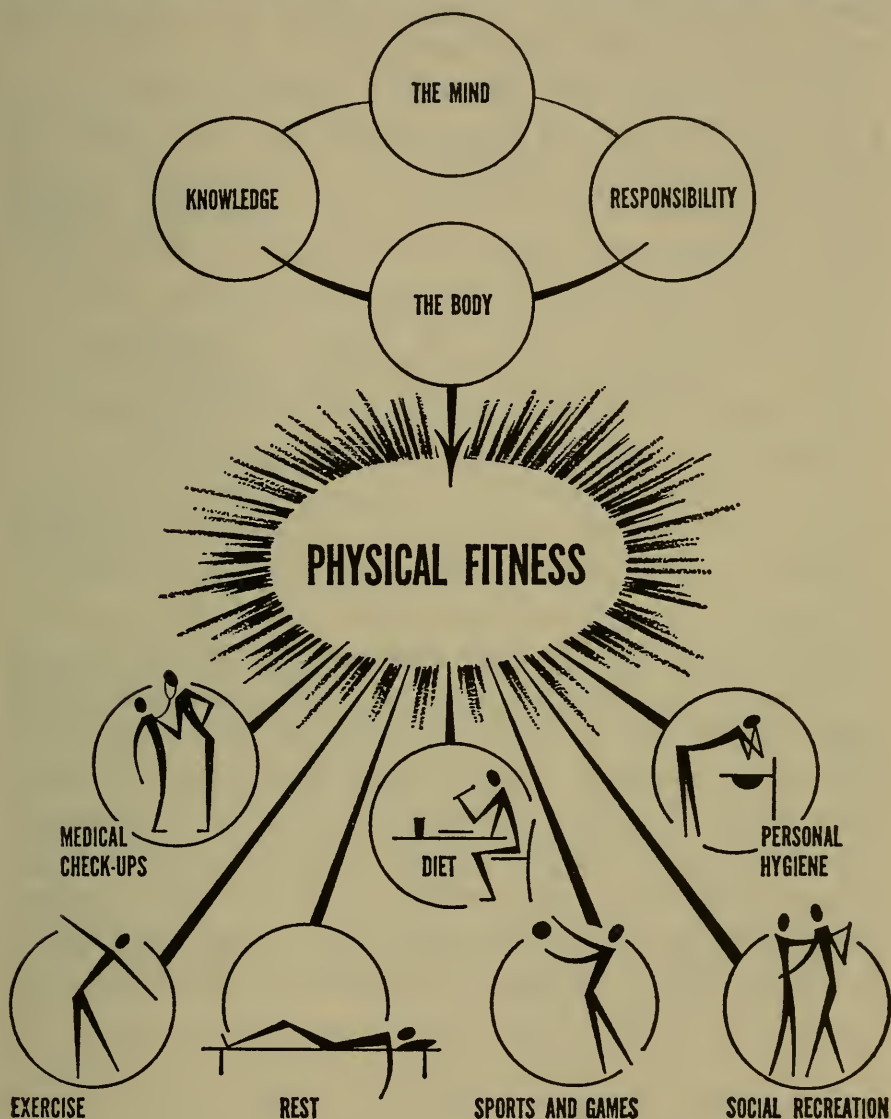
These seven precepts are not hard to follow. You don't have to be a mathematician to understand them. Sufficient sleep, for example, is just getting the amount your particular constitution requires. No one can remain awake for any great length of time without physical harm. It has long been said that Thomas Edison never slept. But we now know that he got his rest by taking short cat naps throughout the day and night. When all added up, they totaled sufficient hours of rest for him.

The usual time spent on calisthenics is fifteen minutes, only a hair over one-hundredth of a twenty-four-hour day, a gilt-edged investment of one per cent of your time. That quarter-hour of conditioning exercise pays off a thousandfold. You exercise in sports and recreation too, of course, but morning wake-up calisthenics is the best way to start off the day.

Eating the right foods in the proper amounts requires some knowledge of nutritional values and the energy you store and expend. But once you develop good eating habits, you only need to keep a watchful eye on your diet thereafter.

Personal hygiene takes up less than an hour a day. For males, that is. Females seem to spend endless time primping up. But a man acquires efficient hygienic

PHYSICAL FITNESS CHART



habits and gets done with them as soon as possible. That's why men prefer a quick shower, while women like to soak in a tub. A man washes up, brushes his teeth, grooms his hair, and he is on his way.

Finally, there is the periodical physical check-up by a doctor, which is as important as the other parts of the program. First he checks to see that you are in good general health. Then he looks for symptoms which might indicate the start of an illness. As your family doctor, he is interested in preventive medicine, which is being stressed more than ever today. If something isn't right, the time to correct it is before it becomes serious. And when he assures you that you are in the pink of condition, you will feel like a million.

These, then, are the seven essential steps to physical fitness. Each of them is covered at length in succeeding chapters. To follow the program takes ambition and determination—in a word, just plain “guts.” But you can do it if you remember that what you are to be, you are now becoming. Keep in mind that your aim is to instill habits which are healthful, enjoyable, and rewarding. When they become a regular part of your life, you continue them as your normal routine. At the same time, you develop mental and spiritual qualities to round out your individuality. Then with a sound mind in a sound body, you are prepared to take your place, and enjoy it, as a healthy, wholesome individual in human society.

chapter 2

The Biology of Your Body

SOME FIFTY YEARS AGO, a villager stood in front of the combination general store and post office in a midwestern community and lazily watched the traffic passing along the dirt road. His nose itched from the dust which was kicked up by the horses as buckboards, wagons, and surreys with the fringe on top went by. Suddenly he was startled by a clatter in the distance, which grew louder as a horseless carriage came up the road at the reckless speed of fifteen miles an hour. Chugging and banging, the devilish vehicle bore down on him and stopped in front of the store. Then the driver got out and proudly demonstrated the first automobile that had been seen in those parts.

The villager strolled around the car and examined it carefully. He looked under the hood and stared at the motor doubtfully. He even honked the rubber-bulb horn. Then he turned to the other villagers who were examining the strange contraption, and expressed his opinion in no uncertain terms.

"It jist ain't sol" he said with conviction.

That villager couldn't believe his eyes nor his ears. As far as he was concerned, the automobile was an uncanny figment of the imagination and didn't even exist.

Back around 1910, this incident occurred in towns and villages all over the country, and it was repeated when the airplane was first observed. Sometimes people just won't believe what they see. And the interesting thing about it is that they take for granted a much more wonderful and intricate mechanism than the automobile, the airplane, and the electronic calculator: the human body. Man has never made an instrument as complicated and perfectly performing as his own physique. The calculating machines which complete involved problems at lightning speed are crude mechanisms compared to the everyday functions of the human anatomy. The mechanical arms used in handling radioactive material are clumsy compared with your own hand, which is the most adaptable "tool" ever devised.

That villager thought he was seeing things when the automobile raced toward him at fifteen miles an hour. In 1960, at Bonneville Salt Flats, Utah, Mickey Thompson set a record-breaking speed in his Challenger I of

406.6 miles per hour. But up until the racing car and the airplane, the fastest thing on earth was to be found in the human body. One wonders what that villager would have thought if he had known that messages transmitted by the nervous system travel as fast as 265 miles an hour. Very likely he would have said again, "It jist ain't so!"

During the years of growth, the body goes through an amazing and highly complicated process. To know something of these anatomical changes gives an added zest to life so that one accomplishes more, and gets more enjoyment out of living. That is why it is important to keep yourself physically conditioned. By being in top form, you appreciate and respond more readily to the world about you. Your senses are alerted to the thousands of stimuli which bombard you every day. When you keep physically conditioned, you are less likely to be overcome by unexpected circumstances, and more ready to take them in your stride. You must learn to use discrimination and judgment, of course. That is a mental process, and being physically fit helps rather than hinders it. After all, the brain, though we know comparatively little about its higher functions, is a physical organ.

Taller and Huskier

The period between childhood and maturity is one of interesting physical and structural changes. The boy of eleven weighs about eleven times his weight at birth, and around half his adult weight. His heart has increased to seven times its original weight. His bones

grow rapidly through the teen years, and he has 206 in adulthood, sixty of them being in those useful "tools," the arms and hands. His height goes up, most of it due to growth in the lower part of the body. The legs lengthen, the hips widen, and the shoulders become broader. Then his trunk lengthens, his chest widens and deepens, and his lungs increase in size. During the middle years of adolescence, the body starts to round out and develop into adult proportions. When he is sixteen, almost 50 per cent of his weight is in his muscles, and his strength is about double what it was five years before. He has reached about 98 per cent of his final height, and his strength is increasing faster than at any other time during adolescence. His head seems to become smaller, but it is an illusion brought about by the fact that his proportions have changed, the rest of the body having grown considerably, while the head has remained relatively the same size. He has, in effect, "grown up to his head."

There is a wide range of difference in the way each of us grows. The years in which we begin and end our growth, the spurts of increase within those years, and the final size and configuration of our bodies, are all highly individual. Two boys, both aged fifteen, may have a skeletal age of thirteen and seventeen respectively, but three years later, when they are eighteen, they may have the same degree of skeletal development. The period of greatest body growth is generally between the ages of twelve and sixteen. Males who begin sprouting early will complete their growth sooner than those who start later, and are apt to be slightly

shorter as adults. So if you are in your early teens and seem to be a slow starter, don't worry about it, for when you do begin to shoot up you are likely to end a bit taller than the quick starters. In any case, don't be unduly concerned with your height during the growth period. A fourteen-year-old, for example, may range anywhere from fifty-four to seventy-one inches in height, and the only thing he can be certain of is that he won't be any shorter. While we can substantially control our weight either up or down, we can do nothing about our skeletal framework and height. By having good posture, you can create the illusion of being taller than you are—you can also do it by wearing a high-crowned hat—but you won't actually add a hair's breadth to your height. In either instance, whether you turn out short or tall, height has no relationship whatever to your physical fitness. And try not to let it affect your psychological approach to others. If you are tall and husky, don't be pugnacious; if you are short and slight, don't be timid or, on the other hand, attempt to compensate for your small stature by going around with a chip on your shoulder. Whatever your height and size, keep physically fit and face the world with courage, intelligence, and human understanding.

The Reproductive Process

The most unusual biological change made in the years of growth is the development of the reproductive system to maturity. Usually occurring during the early teens, it is characterized by a deepening of the

voice, the growth of body hair, and the virility of the sexual organs. New hair appears almost everywhere on the body, noticeably on the chest, in the armpits, around the crotch, and eventually on the face.

During the enlargement of the larynx, the voice may slide down from treble to bass with embarrassing suddenness. One day a boy may be singing soprano in the church choir, and the next he sounds like a fog horn. He is in for some kidding from his chums, but this natural phenomenon is more funny than tragic, so the thing to do is just to laugh it off. Some fellows acquire hairy chests, while others do not. Whatever your hair adornment may be, remember that it is not a sign of virility or strength.

The hair in the crotch, first short and downy, becomes longer, darker and straight, and finally kinky and curly. The sex organs enlarge, and the penis is capable of erection and the discharge of semen. Since the new glandular action takes a while to get into balance, the youth going through this period may be emotionally disturbed. He is apt to feel moody and irritable, and wonder what it is all about. While he perhaps previously thought that girls were pretty much of a nuisance, he becomes aware of their existence, and discovers that they are nice to have around.

Among one-celled animals, reproduction occurs by the splitting of the cell into two parts, the new cell having all of the materials found in the older one. Among most higher forms of life, reproduction takes place, interestingly enough, in exactly the opposite way: instead of one cell splitting in half, two cells, one from

a male, the other from a female, unite to form a new living organism. The "sperm" comes from the male; the "egg" or "ovum" from the female. For most creatures who live in water, the union of the cells takes place outside the body. Among land animals, the sperm cells are introduced into the female during the sex act, and the fertilization of the egg takes place internally.

The male reproductive system is relatively simpler than that of the female, principally because the female harbors the egg during the period of incubation. The male cells are produced and mature in the two testicles which are located outside the body in a pouch, called the scrotum. The semen, consisting of the sperm, carried and protected by seminal fluid, passes through the urethra and out of the erect penis into the vagina of the female. Sperm cells and the male sex hormone are not produced until sexual maturity has been attained. Thereafter, the male is capable of participating in the amazing process of reproduction.

During the period of puberty, most boys have nocturnal emissions, commonly called "wet dreams." Unless a parent has forewarned them, they may be shocked and disturbed by the experience. It is, however, perfectly normal and natural to release semen during sleep. It is occasioned by the fact that the youth has matured to the point where he is capable of fatherhood.

Masturbation is a more serious problem. The urges of the sexual instinct, previously unknown, create wonder and curiosity. Every father should acquaint his male offspring with the effects of this natural biological change. It is a normal phase of sexual development in

adolescence, and should be so treated. Masturbation may result in psychological disturbances. However, as with everything else in life, a sane, sensible attitude will help in avoiding serious difficulties.

In earlier times, and in some countries even today, a young man at the age of puberty took a wife and shouldered the responsibilities of marriage and the family. But in our civilization it is not reasonably possible to assume these obligations at that early age. In our complex society it is of first importance to gain maturity, and to establish some means of economic security, before setting up a family unit. Unfortunately, this makes it somewhat difficult for a young man to adjust his feelings to his social obligations. But by keeping fit, by exercise, and by reasonable control of the emotions, a youth can go through this "awkward age" without harm and be healthily prepared, in mind and body, for his role as a responsible and loving husband and father. Meanwhile, there should be no cause for fear because of nocturnal emissions. They do not affect the mind or result in loss of muscular strength. If, however, they should occur with increasing frequency, it is advisable to consult one's doctor. Do not be secretive or feel shame. The development of the reproductive process is a natural phenomenon. Discuss it frankly with your parents, your doctor, or spiritual adviser; read books on the subject. Be normally curious about it, respect its responsibilities, and assume your proper position as the head of a family when you have earned the right in our society to do so.

Brains and Brawn

In the late teens the rate of growth slows down as manhood is approached. Height and weight reach toward maturity. The chest continues to expand until it is over half the body height. Strength and endurance keep on increasing. Motor ability improves, aided by practice and training. A good and sufficient diet, plenty of activity, and enough sleep during this final period of growth insure a healthy, strong body which will perform at its best in adulthood. Herbert Spencer, the English philosopher, said: "The first requisite to success in life is to be a good animal." This is not to say that the mind should be neglected. In developing the body we also develop the mind. In fact, we can't avoid doing so, even if we would. The cells of the body are grouped into arrangements of tissue. More complex groupings are combined into organizations known as systems. Finally, these are co-ordinated in the functioning of the whole organism. Many people believe that the brain is the organ of thought. But you do not think just with your brain any more than you walk just with your legs. The truth is that you think with your whole body. The muscle tone, glandular secretions, digestive condition, and process of elimination, all influence the functioning of your nervous system. Whatever you do, think, or feel is an expression of your entire organism.

One should not, therefore, minimize the importance of physical conditioning. Nor should it be thought that exercise and athletics only improve the body. Being "a good animal" is basic. And you can be a good scholar

as well as a good athlete. Your aim during the years of growth should be to maintain a normal balance between physical and mental activities. Don't neglect one for the other. Instead of being a "big brain" or a "muscle man," aim toward becoming a well-rounded person who is at home on the athletic field and in a debating class as well. Engage in the world of sports and the world of ideas. Both of them are fascinating and immensely rewarding.

chapter 3

Building Health and Strength

FEATS OF ENDURANCE are always of human interest, and a person who establishes a record is admired for his courage, determination, and stamina. As far back as 1882, J. Saunders hung up a record with a non-stop run of 127 miles 275 yards, which he covered in twenty-two hours and forty-nine minutes. The longest walking race was by A. L. Monteverde in 1926. Though sixty years of age, he covered 3,415 miles, from New York to San Francisco, in seventy-nine days, ten hours, and ten minutes. In 1940, John Sigmund made the longest duration swim ever recorded by swimming 292 miles down the Mississippi River in eighty-nine hours and forty-eight minutes. And for an offbeat

"sport" which will never be certified for the Olympics, in February 1961 a new world's record was claimed by a group of students of Queens University in Ontario, who pushed a bed a thousand miles in six days to publicize the Canadian Heart Fund.

Setting world's records is for the favored few. The rest of us will never be crowned with a laurel wreath. But we can all keep our bodies in trim by simple calisthenics plus other forms of conditioning exercise. Some young men are not physically constituted to become athletes, and others may not desire it. Yet everyone needs to aspire to a useful state of physical fitness in order to accomplish whatever else his goal may be. Conditioning exercises in themselves are not all there is to it, but they are the foundation stone of all forms of muscular activity. Some fellows hope to go in for athletics in a big way, but the great majority take up less rigorous careers. And as their work often requires little physical activity, they are the ones who particularly need a regular program of calisthenics. So you should practice daily setting-up exercises even though you may not consider yourself athletic. "Exercise is one of the important factors contributing to total fitness," says a statement issued by the American Medical Association and the American Association for Health, Physical Education, and Recreation. "The contributions of exercise to fitness include the development and maintenance of strength, speed, agility, endurance, and skill. . . . Active games, sports, swimming, rhythmic activities, prescribed exercises . . . all can make distinctive as well as worthwhile general contributions to fitness."

Morning Calisthenics

There are three types of muscles. *Cardiac muscle* forms the walls of that sturdy organ, the heart. *Smooth muscle* is found in the alimentary canal, the eyes, the blood vessels, and in various other channels which carry fluid. The *skeletal muscles*, extensively distributed over the skeleton, provide motive power. They are attached to bones by fibrous bands called tendons. Skeletal muscles usually act on parts some distance away. For example, the power used when you rise on your toes comes from the calf of the leg. This physical principle makes it possible to apply more strength than if the muscle were in the ankle itself.

Exercise consists of muscle movement. Life is continual change, and exercise is the chief means by which tissue cells are constantly replaced. Exercise quickens the circulation of the blood, bringing new material to every part of the body, and carrying away the old. Just getting up from a lying position increases the heart rate from six to a dozen beats a minute. As movement is increased, the rate goes up proportionately. A man taking violent exercise may be pumping blood at 180 beats per minute. The increase is needed to supply the demand of the contracting muscles for oxygen. An athlete running at full speed needs about eighteen times more oxygen than when the body is at rest. While you are doing wake-up exercises, you need not be concerned about your heart rate. You have had, as recommended, a regular medical check-up, and been found to be in good condition. Therefore, as long as you don't feel uncomfortable, or have a pain, you can continue your calisthenics daily.

A good time of day for setting-up exercises is in the morning before breakfast, but select whatever hour suits you best. If it's in the morning, do some waking-up exercises before getting out of bed. Stretch your arms and legs, breathe deeply, and pump your abdomen in and out a few times. Then get up and go to the bathroom.

In the beginning, do each exercise five times, less or more, adjusting to your needs. Gradually increase the number by one movement each day until you are doing them ten times. Start off with the easy movements to limber up, and then progress to the more difficult.

TEN STANDING EXERCISES



1. Standing erect: raise your arms forward until they are parallel with the floor; swing to the sides and back as far as they will go; return to front; then back to start. Repeat.
2. Raise left leg forward as high as you can, knee straight, toe pointed; then down. Alternate with right leg. Repeat.



3. Hands on hips, feet apart: hold your head erect and turn it from side to side. Lower your head and roll it in a circle, left to right, and reverse.



4. Hands on hips, feet together: squat down until your buttocks rest on your heels; come back to a standing position. Repeat.



5. Raise your arms high over head; swing them down in a wide arc and try to touch your toes (if you aren't able to, keep on trying each day until you can); arms over head; hands at sides. Repeat.



6. Hands on hips: raise yourself high up on your toes slowly; back slowly down to heels. Repeat.



7. Hands clasped behind your head, feet apart: bend your body forward to the left; straighten up; then bend to the right; straighten. Repeat.



8. Hands on hips: run in place, lifting your knees high. Continue for a minute or more.



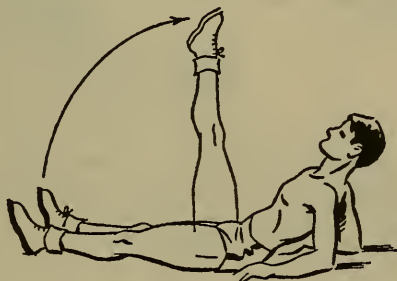
9. Standing erect, hands on hips: jump and land with your legs apart in straddle position; then jump back, landing with your feet together again. Repeat.
10. Breathe deeply, relax, shake arms and hands, bounce easily on toes; loosen up.

These ten simple limbering-up exercises are all performed from an erect position. Do them slowly and rhythmically, counting aloud, if you wish. They should take only about five minutes, and if you are doing them for the first time, wait until you get up to the ten-count before adding the following exercises, which start from other positions. As before, repeat each movement five times and increase gradually to ten movements.

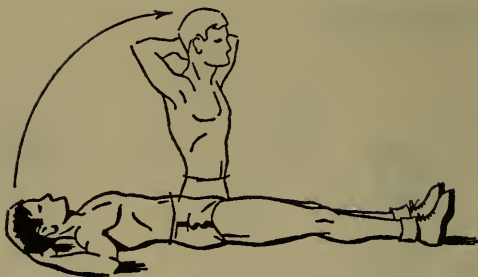
TEN FLOOR EXERCISES



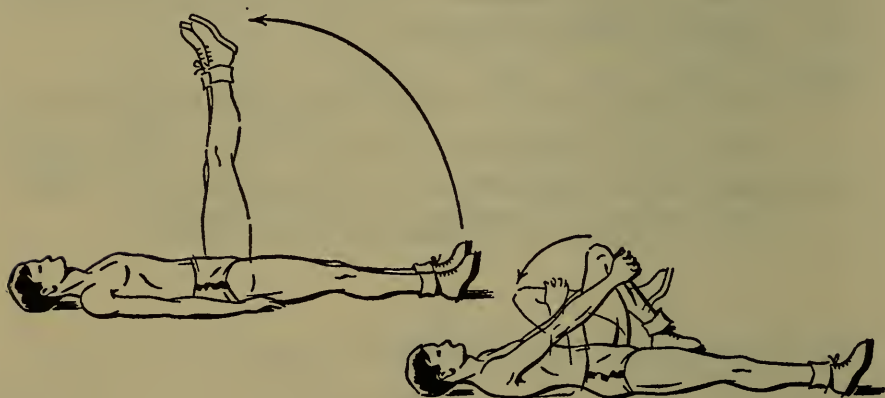
1. Sit on the floor with your legs out straight, feet together, toes pointed, hands on knees: raise arms and spread over head to form a V. Return hands to knees. Repeat.
2. Still sitting, hands clasped behind head: pull up knees until calves and thighs form a right angle and bend body forward touching chest to thighs; then return to starting position. Repeat.



3. Lean back with your forearms resting on the floor: raise left leg as high as possible; then the right. Repeat.



4. Lie flat on your back with hands clasped behind your head: raise yourself up to a sitting position (if you are unable to do this at first, place your arms at your sides and bring them forward as you raise your trunk); lie down. Repeat.



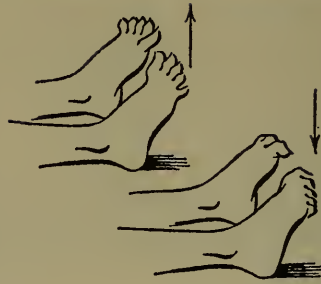
5. Lying on back, with arms at sides, palms down: raise both legs in unison to a vertical position; legs back to floor. Repeat.
6. While on back, arms at sides: bring left knee to chest and squeeze tight with both hands; return to start; same with right knee. Repeat.



7. Lie on your back, knees bent, feet flat on the floor, with arms at sides: raise your head and shoulders until you can touch your knees with your fingers; return to back. Repeat.
8. Get into a squat position, hands on hips, knees spread: jump erect with feet apart in the straddle position; return to squat. Repeat rhythmically.



9. Lie face down, arms bent, hands flat on floor beside your shoulders: push up keeping body straight; bend arms until chest almost touches the floor. Repeat.



10. Roll over on your back and rest: meanwhile, exercise your toes by drawing them upward, separating them as much as possible, then curling them under the feet.

It takes about two weeks to reach the point where you are doing both sets of exercises ten times each. Remember that you are an individual, and you should apply these conditioning exercises to fit your particular physique and constitution. Some may find that five repeats are enough for them, while others may go as high as sixteen. You may not be able to do all of the movements in the beginning, but keep on until you can. Within a month you should be able to go through the whole routine with ease. Do them rhythmically, counting them off. When you are fairly proficient, try a phonograph record to mark the beat. Get a long-playing disc featuring waltzes, in three-quarter time, and do each exercise eight or sixteen times.

Barring illness or accident, daily conditioning exercises should be continued throughout the years. They give you muscle firmness and tone and good posture.

You are able to do physical labor with less effort, and you won't feel so tired afterward. When your day's work is done, you can relax comfortably. Exercise, coupled with proper diet, will do much to keep your weight normal. You will feel better and look better. These benefits are yours for fifteen minutes of stimulating and pleasurable calisthenics each day.

Training with Weights

"No system of physical education or of exercises can exist without the use of resistance," says Peter Karpovich, research physiologist at the YMCA Springfield College. "Whether you use a bar bell or the weight of your own body, the effect is the same." Dr. Karpovich recommends weight training for all male athletes: shot-putters and football players to swimmers, tennis players, and even golfers.

The particular advantage of bar bells in weight training is that the amount of resistance can be exactly controlled by the heaviness of the weights, and increased or decreased as desired.

Weight-training exercises are not recommended before ten years of age. Those who are younger should use dumbbells. Exercises with the bar bell are done every other day: Monday, Wednesday, and Friday or Tuesday, Thursday, and Saturday, with Sunday as the day of rest. Don't exercise too soon before or after a meal, in order not to disturb the process of digestion. A good time is late afternoon or early evening, but select any period which suits you best.

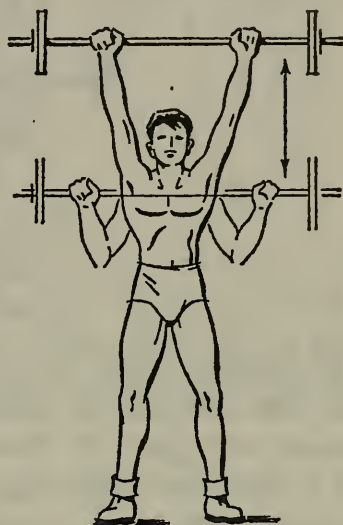
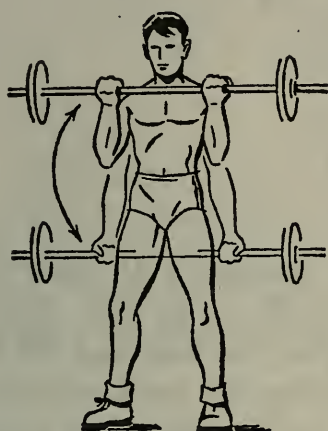
The important point about weight training is not to

go at it too hard or too fast. Take it easy at first. Begin with an empty bar without weights; then add the weights gradually. Don't add more than you can comfortably handle; it is going through the exercises that counts, not how much weight you can lift. Have an instructor or your father supervise your exercises until you have learned how to handle the bar bell. Experiment until you find the weight you can use to perform a given exercise eight times without stopping. Add a repetition with each training period until you have reached twelve. Then add one or two pounds to the bar bell, drop back to eight repetitions, and begin the same upward progression.

Don't try to emulate Milo of Crotona, in the ancient story, who was said to be able to carry a four-year-old bull because he had been lifting the animal daily ever since it was a calf. This feat was re-enacted in modern times by a seventeen-year-old youth who began lifting a seventy-five pound calf. He was forced to give up after 201 days when the animal weighed 290 pounds. And don't try to beat the record of Paul Anderson, Olympic champion, who could, in a hip-lift, raise 3,500 pounds from the floor. Play safe, not only in weight lifting, but in every other form of exertion.

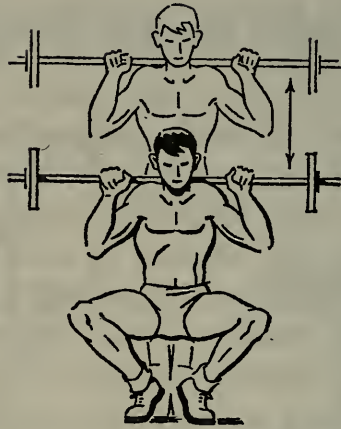
It is important to rest between lifts. Usually one or two minutes is enough, but take longer if you like, and don't rush to get through the exercises in a hurry. Warm up before each period by doing some calisthenics or going through the movements without any weights on the bar. Here are the basic exercises in weight training.

Five Basic Bar Bell Exercises

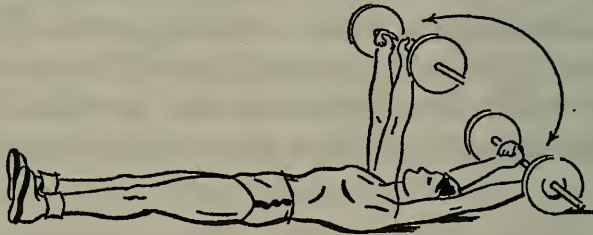


The Curl. Grasp bar bell with palms away from legs and raise it to thighs while standing erect. Flex fore-arms against upper arms, raising bar bell in an arc up to your chest while the elbows remain at sides. This lift develops the biceps and other arm and forearm muscles.

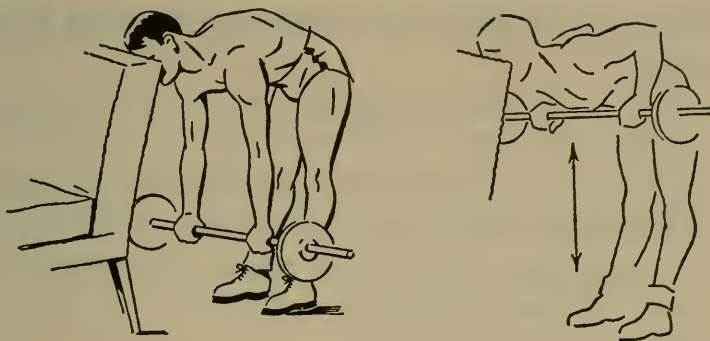
The Press. Grasp bar bell with palms toward legs and, with back straight, lower hips and raise bar bell to upper chest. Then push it overhead, lower to chest, and lift overhead again. This develops the shoulders and the triceps in the arms.



The Squat. Place bar bell on shoulders at back of neck. You can lift it there yourself, as in the press; someone can place it there for you; or you can lift it from a shoulder-high stand. Keeping the back straight and chest high, lower your body into a full squat; then rise to an upright position again. This lift develops the hips and thighs.



The Pullover. Lie back and grasp bar bell at shoulder width with arms behind the head. Breathe in and pull to position above chest; breathe out as the weight rises in an arc; then lower to starting position while breathing in. Use a light weight; just the bar alone is enough for a starter. This promotes chest expansion.



Rowing. Place your forehead on top of the back of a chair or something equal in height. Grasp bar bell with palms toward legs and pull it from just off the floor to your chest and then lower again. This lift develops the upper muscles of the back.

Aquatic Sports

Swimming is one of the best all-around forms of exercise, because it uses both arms and legs with equal vigor. It can be enjoyed by anyone in good general health, and even by many who are incapacitated in some way. Swimming uses up about 600 calories of energy an hour, as much as fairly heavy physical labor, so unless you are an expert, don't swim for long periods of time. The first rule for water safety is, of course, learning how to swim. Here are other precautions which should always be observed.

1. Before you swim in a river, lake, or pool, check with someone in authority to make certain that the water is not contaminated.

2. Never swim alone or too soon after eating a heavy meal.
3. Don't dive into or swim over your head in unfamiliar waters.
4. Don't swim when overheated or tired. Come out of the water before you get tired or cold.
5. Be sure that children or adults who can't swim wear life belts while in a boat.
6. Don't overload a boat.
7. Be certain that a motorboat or speedboat is equipped with life belts and oars or a paddle.
8. Don't put too high-powered a motor on a small boat.
9. Never take out a boat in bad weather.

Everyone who swims should know the correct answers to the Water Safety Test prepared by the American Red Cross. Test yourself and see how many of these safety measures you are familiar with. Note that there is a choice between two correct answers to the last three questions.

QUESTIONS

1. You are swimming in open water and get a severe cramp in your leg. You should:
 - (a) Roll over to a face-down position and massage the aching part.
 - (b) Swim to shore as quickly as possible.
 - (c) Tread water and call for help.
2. You are in a boat in rough water and the boat capsizes. You should:

- (a) Get away from the boat, tread water, and call for help.
 - (b) Try to swim to shore.
 - (c) Hang on to the boat.
3. You are swimming in heavy surf and find yourself being carried out to sea. You should:
- (a) Swim toward shore at an angle.
 - (b) Swim to one side and not against the current.
 - (c) Stop swimming and float with the current.
4. You are walking out into the water and you step into a deep hole. You should:
- (a) Drop your head forward and move your arms under water in dog-paddle style.
 - (b) Throw up your hands and yell for help.
 - (c) Sink to the bottom and push off with your feet to bring yourself up to the surface.
5. You want to test your endurance with some distance swimming. You should:
- (a) Ask a lifeguard to keep an eye on you.
 - (b) Swim parallel to shore.
 - (c) Arrange for a boat to accompany you.
6. You are climbing up a pool ladder when you notice someone in trouble behind you, a few feet from the side of the pool. You should:
- (a) Hold on to the ladder and extend your leg back for him to reach.
 - (b) Call a lifeguard.
 - (c) Swim out to him and bring him back to the side of the pool.

ANSWERS

1. (a) The face-down position enables you to float while you are relieving the cramp.
2. (c) Boats usually float, so hang on.
3. (b) This takes you away from the current and conserves your energy so you can swim back to shore in a straight line.
4. (a or c) Either way will take you out of a hole. If you use (c) you will continue to push up and down in a bobbing manner until you are clear.
5. (b or c) Lifeguards cannot always concentrate their attention on one person. If you swim out, you must swim back, and it might overtax your strength.
6. (a) The easiest and safest rescue technique is to extend your reach, either by an arm, a leg, or with a pole. (b) Call a lifeguard. Swimming rescues should be a last resort unless you are trained in water rescue work.

Skin and Scuba Diving

Underwater swimming has many enthusiasts today. The two most popular types are: skin diving, in which a face mask, snorkel, and swim fins, or "flippers," are used; and scuba (Self Contained Underwater Breathing Apparatus) diving, which calls for a tank of compressed air strapped to the back, a connecting hose, face mask, and flippers. The scuba equipment enables a swimmer to remain under water for varying times, limited by tank volume and depth of dive.

Skin and scuba diving should not be attempted without first having supervised training. The YMCA con-

ducts training programs in these twin sports. A medical examination is required of each course candidate. A swimming proficiency test is required of all candidates. To qualify, one must be able to tread water with no hands for three minutes; swim 300 yards in continuous movement; tow an inert swimmer forty yards; float motionless ten minutes; and swim fifty feet under water without a push-off.

A physical fitness test is recommended for skin diving candidates and required of all scuba candidates. It includes chinning, push-ups, sitting tucks (sit on floor with hands on hips, feet raised six inches off floor; bring knees as close to chest as possible, then stretch legs straight out without letting feet touch the floor), and a mile run or a hops test. It is obvious that you have to be a proficient swimmer before attempting skin or scuba diving. But if you persevere until water seems almost as natural an element as air, you should be able to qualify for one or both of these exciting aquatic sports.

Taking Chances

All sports involve risks to a certain extent. Swimming, in which most youths indulge, may result in injury or drowning. You simply cannot be active without some risk. Even in taking a bath, you may slip in the tub and get hurt. This doesn't mean that you shouldn't bathe. No more would you stop eating fish because you might choke on a bone. Exercise and sports are healthful, body-building, and also contributive to emotional balance. They are of genuine importance in a well-

rounded life. "All life is a risk," says the American Medical Association, "and without courage life is not worth living. Medicine in no way objects to activity, competition, and risk, in their proper place."

Take up any healthful physical activity which interests you, whether it be basketball, swimming, tennis, or some other sport. Be active, but observe the rules of safety recommended by doctors and physical directors. Minimize the risks by: (1) preconditioning your body through exercise; (2) using safety equipment; (3) learning the skills of a sport or activity, and practicing safety procedures; and (4) being sure that the sport is adequately supervised. Follow these common-sense measures and you will stay fit and have more fun.

Dancing and Skating

Ballroom dancing uses up approximately 250 calories of energy per hour, about the same as ice skating. These recreations also have other points in common. They require about the same area for their performance. When you become proficient in them, they are rhythmic and graceful. And they afford an excellent opportunity for young folk of both sexes to become acquainted with each other. Boys, as a rule, seem to be more shy than girls. While young ladies get a thrill out of their first school prom, young men often become tongue-tied when asking for a dance. A good way to approach this common problem of adolescence is to start dancing with mixed groups first, as the atmosphere is informal and you don't have to dress up. As you get adjusted to mixed company, go to school or church affairs where

folk and square dances are featured. Finally, dress up and attend a ballroom prom. And don't get the idea that dancing is "sissy." As has been said, it uses up as much energy as skating, and is a healthful and pleasurable form of exercise.

Hiking

In this age of the motor vehicle, many people, both young and old, don't do as much walking as they should, though it is an excellent form of exercise for physical fitness. Athletes, however, appreciate its value, and usually make a practice of walking for an hour or so every day, rain or shine. The scientific way to compare the exercise value of various activities is by their caloric energy value, as we have been doing. It may surprise you to learn that a brisk walk uses up approximately as much energy as table tennis or heavy carpentry, about 300 calories an hour. When this simple form of exercise is suggested to city chaps, they often say that they would go for a hike if they lived in the country. But, in the first place, every city has parks; New York, for example, has 1,293, while Chicago has 212. And secondly, however large a city, you can usually get out into the country in less than an hour. Don't go by car because the chances are that you will keep on riding and never stop to stretch your legs. Take a bus instead to some pleasant spot where you can start off on a good, brisk hike. If you cover four miles, you will use up around 300 calories. That is the equivalent in food energy of a juicy hamburger; and when you finish your hike, you will have no trouble devouring one. Hik-

ing is invigorating and healthful in all sorts of weather. It is inexpensive, too, which is an important consideration if your pocket doesn't happen to be jingling.

Energy Ratings

We receive energy from the food we consume, and then expend it in our various activities. The more active we are, the more energy we naturally use. Here is a list showing the amount of energy we burn up in various ways, including chores, occupations, and athletic activities. After you have gone over it, ask your father if he can estimate any of them. It will be fun seeing how close he comes.

Energy Expended in Various Activities

Activity	Approx. calories per hour
Awake, lying still	75
Badminton	175
Bicycling (moderate)	175
Bicycling (fast)	500
Bowling	400
Calisthenics	200-500
Canoeing (moderate)	180
Carpentry	300
Dancing	250
Dressing and undressing	125
Driving an automobile	75
Eating	25
Farming	400
Fencing	500
Golf	300

Horseback riding (walk)	150
Horseback riding (trot)	500
Household chores	200-300
Making bed	175
Piano playing (slow)	50
Piano playing (fast)	150
Reading aloud	100
Rowing (moderate)	400
Rowing (in a race)	1,200
Running	800-1,000
Sawing wood	500
Sculling	675
Singing	125
Sitting at rest	100
Skating (moderate)	250
Skating (fast)	350-700
Skiing	600-700
Sleeping	75
Soccer	550
Standing	100-150
Swimming (breast and back stroke)	350-650
Swimming (crawl)	700-900
Table tennis	300
Typewriting	125-150
Walking (2 miles per hour)	200
Walking (4 miles per hour)	300
Wrestling	900-1,000
Writing	100

chapter 4

Feeding the Inner Man

FOOD is the most important factor in determining your weight, and therefore your physical appearance. It also affects the state of your health, your strength, and your vitality. A study made of several million people by life insurance companies showed that a man in his forties, of normal weight, could expect, on the average, to live two years longer than one who was twenty pounds overweight, and four years longer than a man thirty-five pounds overweight.

It is said that some people "eat to live," and others "live to eat." You can easily recognize the latter, for

they are certain to be substantially overweight. Since eating habits are usually fixed in childhood and adolescence, these people are destined to carry more weight than they should throughout the years. It is of great importance, therefore, that you form sensible food habits before you reach your majority.

The first step is to have the right mental attitude. You should "eat to live" for good health and an active life, now and in the future. But food is not only a necessity; it can also be pleasurable, as you know when you sit down to a Thanksgiving dinner with roast turkey and all the fixings. Yet too many men look at food as the means of sustaining life and nothing more. You may have heard someone say that he was a "steak and potatoes" man, as if it were something to boast about. But he has really given himself away by showing that he has no appreciation for fine foods. A good charcoal-broiled steak is tasty and sticks to the ribs, but there are thousands of other delightful dishes. The point is that the diet should be varied to make sure that you get all of the necessary food elements. A variety of tempting dishes helps to maintain a hearty appetite and increases your enjoyment of good food.

To increase the pleasures of eating, taste things you've never had before. Be an experimenter, and perhaps you will make a discovery which will tickle your palate. Take just a little taste and, if you don't like it, you can leave the rest. Here are a dozen delicacies which many young people have never tried. Check the ones you have tasted to see if you are a food epicure.

Twelve Tasty Foods

Avocado. A pulpy, pear-shaped fruit used mostly as a salad and served with dressing. Has a delicate, buttery flavor. Also called "alligator pear."

Beef tongue. Slightly cured or smoked. Sliced thin and served hot with a sauce, or cold for cold cuts or sandwiches.

Brussels sprouts. Miniature cabbages with a light cabbage flavor. Boiled and served with butter, salt, and pepper.

Calves' brains. Has the texture of custard pudding. Breaded or plain, baked or fried, with hot butter.

Endive. An herb with curled leaves. Used as a salad. Tastes a little sharper than lettuce.

Kidneys. Beef, pork, lamb, or veal kidneys all have an ample supply of the essential vitamins.

Lentils. Flattened seeds which are cooked like peas and beans. Very rich in iron.

Olives. A fruit cultivated since biblical times. High in nutritive value.

Oysters. Delicious raw and served iced on the half-shell, sprinkled with lemon juice, and dipped into a hot sauce. Rich in calcium and Vitamin A.

Pumpernickel. A coarse-grained dark bread with its own distinctive flavor. A welcome change from white breads.

Sour cream. A new taste sensation when served liberally on baked potatoes, or on fresh berries or bananas, instead of sweet cream.

Swordfish. Considered the equivalent of a good porterhouse steak. Has less fat and much more Vitamin A than beef.

Well, how did you make out? If you have eaten from nine to all twelve of these foods, it indicates that your diet is varied, which is a good sign, and that you do not shy away from trying something different, as is frequently the case with many young people, and adults as well. You have curiosity, courage, and imagination, all favorable traits. As you grow older, you may well become a gourmet, an epicure of good food. You must be cautious, however, not to become a gourmand, one who eats greedily just to stuff his stomach.

If you checked from five to eight items, you are beginning to explore the endless variety of edibles. While you will "eat to live," you will also appreciate that eating good food, well prepared, provides a pleasurable sensation in itself. Should you later travel abroad, you won't order American dishes, as many do. Instead, you will try the celebrated dishes of the countries you visit, and thus broaden your tastes while you are broadening your mind.

Should you have scored four or less, you have a treat in store if you will make a start to investigate the delights of the dining table. Try not to limit your choice of foods to just a few items always cooked in the same way. In addition to eating a wider variety, try some everyday foods prepared differently. For example, if you are accustomed to having boiled or fried eggs at breakfast, try them scrambled, as an omelet with jelly, or poached on toast. You won't run out of recipes, as there are well over three hundred ways to cook eggs.

Exercise, food, and rest are three principal factors in a physical fitness program. We have already spoken of

the importance of exercise, which most young men readily accept and enjoy. But too many of us acquire bad eating habits in our youth, and so do not get the full benefits of exercise. That is why the right attitude toward eating has been stressed. Once you have that approach, you will acquire beneficial eating habits which, together with exercise and rest, will result in your maximum potential for good health and strong muscular development. Talk with your mother about the preparation of a variety of foods, as you want her co-operation and enthusiastic support on this project.

What to Eat and Why

When you are offered a food which is strange to you, you would much prefer to have a parent say "Try it; it tastes good," rather than, "It's good for you." Nobody likes to be forced into doing anything which he thinks may be an unpleasant experience. We naturally like things that "taste good." During our infancy and early childhood we have little or no choice in the selection of foods. As we grow older, we begin to have a voice in the matter, and we may express it in no uncertain terms. Mothers often say with a sigh that their hair is turning gray because of their vain attempts to get a son to eat what he should.

The problem lies in the fact that we only want to eat things which taste good. What we don't realize is that human beings can acquire a taste for almost anything that is edible. Eskimos cut off a slice of fatty blubber from a whale and chew it raw with great delight. Some people enjoy rattlesnake meat. Others like

chocolate-covered grasshoppers and ants. Fortunately, we don't have to go that far to be lovers of good food.

Another thing which influences our choice of edibles is that we all seem to have a "sweet tooth," and it is especially pronounced in our younger years. No child or adolescent has to be induced to eat something that tastes sweet. This is unfortunate because our "sweet tooth" has gotten us into the habit of eating far more sweets than we should. The average American consumes two pounds of refined sugar a week, plus the added sugar he gets from fruits, candy, sodas, and other sweet things. This is twice the amount of sugar specified in the food plan recommended by the United States Department of Agriculture.

It is of utmost importance, in choosing your food, that you make the proper selection for a well-balanced and adequate diet. But before you can choose wisely, you need to know something about what to eat and why. The food you consume does three big jobs:

1. Provides materials for building and repair of the body. Tissue and bone are chiefly made of protein, minerals, and water. The child and the adolescent must have these food materials to grow on. They are also required throughout life for the upkeep of the body.
2. Provides regulators which enable the body to use other materials and to operate properly. Vitamins, protein, and minerals are important for this purpose.
3. Provides fuel for the body's energy and warmth.

All foods contain some fuel (calories), but the amount varies widely.

Food is Fuel for the Body

If you think of food as fuel for an engine, its basic purpose is simply understood. The fuel for a motor car is gasoline. The rate of consumption depends upon mileage and speed. The expenditure of food energy depends upon the nature and rate of our activities. We use up energy even while sleeping. A calorie is a unit of measurement, just as inches, quarts, and pounds are. The caloric value of a food means the amount of heat or energy which can be obtained as muscular exertion and heat when that food is used by the body.

Today we know the approximate number of calories needed daily by persons of different ages and weights, depending on their occupations and activity levels. We can also estimate the energy values of various foods. And we know the energy expended in activities of all kinds. So by simple addition and subtraction, we can draw a number of important conclusions.

An auto's fuel tank has a certain capacity. If you try to put in more gas, the tank overflows. Your body, however, can absorb more fuel than it presently needs, and the excess is stored as fat. This provision was needed when food was not in plentiful supply. Indian hunters and their families used up stored fat when wild game was scarce. The sensation of hunger is a signal that the body is calling for more food energy. When a person reaches full growth, the amount of food energy consumed should roughly equal the amount of energy ex-

pended. During the growing years, more food energy is required. Here are the recommended daily caloric allowances for males from ten to nineteen years. Requirements vary according to body build, type of activity, climate, geographical location, and other factors.

Age	Calories
10 to 12	2,500
13 to 15	3,100
16 to 19	3,600

These figures approximate the food energy needed daily. However, to estimate whether you are getting enough food energy—not too little or too much—necessitates frequent reference to a calorie chart listing the energy value of hundreds of foods. This is quite a chore and takes much of the pleasure out of eating. We can avoid this by using a simple food guide showing the four basic food groups and their minimum requirements.

A Daily Food Guide for Fitness

Meat Group 2 servings
Beef, veal, pork, lamb, poultry, fish, eggs.
As alternates use dry beans, dry peas, nuts.

Milk Group 4 cups (1 quart)

Vegetable and Fruit Group 4 servings
Include a citrus or other fruit or vegetable, important for Vitamin C.

A dark-green or deep-yellow vegetable for Vitamin A, at least every other day.

Other vegetables and fruits, including potatoes.

Bread and Cereal Group

4 slices

Whole grain or enriched bread.

Plus:

Butter or margarine, and other foods to complete meals and to provide additional food energy and other food values.

Besides energy, the body also requires other values from food. The most important of these is protein, which builds and renews the organs, muscles, skin, hair, and other tissues. Calcium is one of the chief minerals in bones and teeth. Very nearly all of the calcium in the body is used for framework. In addition, there are other minerals, such as iron and iodine, which are needed in small amounts. And you have heard of the nearly twenty vitamins which have so far been discovered. However, you need not be greatly concerned with them if you follow the recommended fitness food guide which insures a balanced diet. When you have your periodic physical check-up by your family doctor, he will determine whether you need more vitamins and, if necessary, will prescribe a vitamin supplement.

Weekly Food Plan

What does all this add up to? Nutrition is a science of which we have learned much, yet still have a great deal more to learn. However, for your own purpose, the elements can be boiled down to a simple program which is easy to follow. Here is the weekly food plan

suggested by the United States Department of Agriculture. It has been originally set up for this book so that you can check off the items each day as you consume them.

Weekly Food Check-List

<i>Food</i>	SUN.	MON.	TUES.	WED.	THURS.	FRI.	SAT.
Meat, Poultry, Fish in pounds	1	1	1	1	1	1	1
Eggs	1	1	1	1	1	1	1
Milk in quarts	1	1	1	1	1	1	1
Flour, Cereal, Baked Goods in pounds	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Citrus fruit, tomatoes in pounds	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Other Vegetables and fruit in pounds	1	1	1	1	1	1	1
Potatoes in pounds	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Butter, fats, and oils in ounces	2	2	2	2	2	2	2
Sugar and sweets in ounces	2	2	2	2	2	2	2

Make up a weekly chart like this, and circle the items as you consume them. If, for example, you don't have four glasses of milk on Sunday, you do not circle it, and

you know that you are behind in your consumption of milk. At the end of the week you can see at a glance just where you have gone below the recommended requirements.

It is not necessary to consume the exact quantity each day. You may, for instance, have a three-egg omelet twice a week instead of one egg at breakfast every day. As long as you approximate the weekly totals, you will be on a well-balanced, healthful, body-building diet. But don't have too much of one item and too little of another as you will disturb the proper balance, and your diet will go haywire. An ounce of plain fudge has the same food energy value, 115 calories, as a serving of broiled chicken. But the chicken is high in protein whereas the candy has almost none, and the chicken has more vitamin and mineral value than the fudge. So follow the food guide and you can't go wrong. You will reach your maximum height and best weight for your frame. You will be in the best of condition to participate in exercise and sports. And the habit of eating sensibly will result in long-term benefits throughout life.

The athlete follows the rules of diet already given, which are basic in any physical fitness program. When he is in training, however, he needs to pay particular attention to what he consumes so that his whole constitution will be triggered and ready at the right moment. Exercise and diet must be smoothly geared to deliver that extra ounce of energy which is needed for the supreme effort, that instant when he feels that he can't go on any longer, but then suddenly comes through.

Eat lightly before a contest, as it takes time for a meal to digest, and your natural excitement slows or stops digestion. Then have a two-ounce bar of sweet chocolate to take the sharpness off your hunger and for a quick touch of energy.

Weight Control

In our youth we sometimes worry needlessly about matters which are not of great concern unless something goes radically wrong, when medical attention is indicated. This is true of height and weight. When we reach maturity, if they are normal for our body build, we have no problem. But during the years of growth, they do not always follow a regular pattern. You may be short for your age and then, seemingly all of a sudden, your height shoots up. Or you may be under average weight, and later you start putting on the pounds. So any index should only be used as a general guide. Also to be taken into consideration is your body type and build, which may run your weight either under or over these average figures. The measurements shown on the chart are without shoes or outer clothing.

Average Weight for Height

Males from 10 to 18 years

Height 10	11	12	13	14	15	16	17	18
(inches)								
47	50							
48	53							
49	55	55						

50	58	58	58						
51	61	61	61						
52	64	64	64	64					
53	67	67	68	68					
54	70	70	71	71	72				
55	73	73	74	74	74				
56	77	77	77	78	78	80			
57	80	81	81	82	83	83			
58	84	84	85	85	86	87			
59	87	88	89	89	90	90	90		
60	91	92	92	93	94	95	96		
61		95	96	97	99	100	103	106	
62		100	101	102	103	104	107	111	116
63		105	106	107	108	110	113	118	123
64			109	111	113	115	117	121	126
65			114	117	118	120	122	127	131
66				119	122	125	128	132	136
67				124	128	130	134	136	139
68					134	134	137	141	143
69					137	139	143	146	149
70					143	144	145	148	151
71					148	150	151	152	154
72						153	155	156	158
73						157	160	162	164
74						160	164	168	170

While there is no particular virtue in larger body size, it is interesting to note that the average youth of today is about two inches taller and ten pounds heavier

than adolescents in his grandfather's day. This increase is primarily due to better nutritive habits, advances in medicine and public health, and higher standards of living. In comparing your own height and weight with the averages, remember that, because of your particular build, you can be over or under in either one or both, and still be in good physical trim.

Guides to Weight Control

The thing to keep in mind is that you can control your weight, though not your height, by regulating your food consumption. Exercise plays a part, but diet is the dominant factor in weight control. For example, the recommended daily food energy allowance for boys from thirteen to fifteen years of age is, as previously shown, 3,100 calories. Now let us say that a youth in that age group consumes 250 more calories each day than the recommended amount. That doesn't seem like very much, equaling only about an extra hamburger patty or a malted milk a day. But, as has been said, the body stores unused energy as fat. We know that 3,500 calories equal about one pound of body weight. So if he doesn't burn up this energy, he will add a pound of fat to his weight every two weeks, twenty-five pounds in a year, in addition to his normal growth. It is plain that in a relatively short time this youngster will be carrying around too much weight for his own good. How then can you keep your weight normal for your physical structure? Here are three guides that will help to insure your best weight under normal conditions.

EAT SMALLER PORTIONS

At home, and when you are a guest, ask for smaller servings. Good cooks love to pile up the plates to overflowing. They enjoy seeing their family and guests gorge on food with exclamations of delight. You want to be polite, of course, but it is wiser not to follow their example. Simply say that you are in training to improve your physical fitness and a reasonable portion is enough; perhaps later you will come back for seconds. And to keep your food intake well balanced, it is better to have a little of everything than to eat all of one dish and none of others. Remember what has previously been said about developing a taste for a variety of foods. In that way your diet will be rounded, and, too, you will always be a welcome guest.

WATCH THE SNACKS

Snacks are not advisable in maturity, particularly for those who are inclined to be overweight. During the growing years, when you are expending an excess of energy in growth and recreation, snacks may be in order, especially if you have just finished a vigorous workout in some form of exercise. The thing to watch out for with snacks is not to make such a habit of eating between meals that you will carry it into maturity, when you may have to be careful of excess poundage.

A poll of ten thousand junior and senior high school students in California revealed that 32 per cent of them "never" or "only sometimes" ate breakfast. The most common reason was that they "didn't have enough time." "Not having enough time to eat" is like "not

having enough time to live." We "eat to live." The logical conclusion is that they didn't get up soon enough to enjoy a good breakfast. And it follows that very likely they didn't have enough sleep. Which means that they aren't physically fit. Today most physicians and nutritionists recommend a good breakfast before an active day, with a lighter meal at noon, according to one's requirements. The basic nutritional maxim is this: Have your "three squares" a day, every day. Then you won't be nibbling constantly between meals, and possibly unbalancing your diet because of an over-emphasis on candy, ice cream, and soda pop.

GO LIGHT ON HEAVY FOODS

Rich foods which are packed with starch and sugar, or loaded with fat, and very likely low in calcium, vitamins, and minerals, are consumed to excess by Americans. It has already been pointed out that we consume twice as much sugar as we need, and the same is true of fats. Gravies, sauces, and salad oils are high in calorie and fat content. The frying of food greatly increases the calorie content. Rich desserts, candy, and other sweets pile on the poundage. Canned fruit packed in heavy syrup has two to four times the caloric value of fresh fruit. If you go overboard on high-calorie, fatty, or sweet foods, you will unbalance your diet; and if you consume them in addition to your normal calorie requirements, you will look like a balloon but won't be as light as one.

The only person who can afford to overlook the foregoing suggestions is one who is inclined to be under-

weight. He can eat to his heart's content, though his diet should be well rounded, nevertheless. Provided he gets his basic requirements, he can indulge in snacks, fats, and sweets. But he must take care that when he reaches what is the best weight for him he doesn't work his way through life with a knife and fork and merely "live to eat."

The average adult American male is overweight from ten to twenty pounds. This is partly because we are a prosperous people with a plentiful food supply. It is also due to bad eating habits formed in adolescence. That is why it is of extreme importance that you train yourself to eat wisely now. You cannot be physically fit, however much you may exercise, unless you get on, and stay on, a proper diet. Exercise, whether it be work or play, attains its full benefits and pleasures only when you know how to "feed the furnace." All activity expends energy at varying rates. Food supplies the fuel which you draw upon in everything you do. You consume about 1,500 pounds of food a year. Eat sensibly, select from a variety of dishes, and enjoy the hours you spend at the table. The Chinese have a philosophy about food. "We eat food," Lin Yutang has written, "for its texture, the elastic or crisp effect it has on our teeth, as well as for fragrance, flavor, and color." Yes, there is far more to eating than just stuffing one's stomach. It is the firm foundation on which we build and exercise our bodies in attaining and maintaining physical fitness.

chapter 5

Good Health Looks Good

A LITTLE TYKE went off to summer camp for the first time. After being briefed as to the regulations, he wrote his mother that they had to take a bath once a week "even if you don't need it." This amusing comment applies generally to personal hygiene. You don't *have* to bathe regularly. You don't *have* to clean your teeth. You don't *have* to shave—you can grow a beard. Having read about halfway through this book, you will have noticed that there is no "have to" approach. The suggestions, instructions, and rules are drawn from the knowledge, experience, and studies of authorities in

many fields relating to physical fitness. But no attempt is made to force you into following them. It is hoped that you will be guided by these professional people for the simple reason that "it makes good sense." During the growing years you gradually take over and make your own decisions—and you are responsible for them. That little fellow felt he "had to take a bath" every Saturday night. But you are mature enough to approach personal hygiene with the right attitude and take care of your body—your mind and spirit, too—because you realize that it is the best and most rewarding way of life. So in reading this chapter, and the others as well, if they sound sensible to you, incorporate the ideas into your physical fitness program. Personal hygiene is not absolutely necessary to life. But anyone who appreciates the value of being fit takes reasonable pride in his physique and his general appearance. Some items of hygiene may not be of great importance in themselves, but they all influence the total presentation of yourself. A man may be freshly bathed and neatly dressed, but the whole effect is spoiled if he has neglected to clean under his fingernails, or if his hair is well groomed but his shoes need a shine.

The principle which should guide you is that everything in a physical fitness program relates to everything else, and has an effect on the sum total. In personal hygiene, there are no halfway measures, and nothing, however insignificant it may seem, should be overlooked. Your goal is to be as physically fit as your constitution permits. And in order to get the maximum value out of it, you observe the lesser precepts as well as

those of greater significance. When you have that aim, your accomplishments will be desirable, admirable, and rewarding.

Clean Hands, Clean Minds

The ancient Greek proverb reads in full: "Have not only clean hands, but clean minds." The implication is that one should have a clean mind in a clean body. Those who embark on a physical fitness program may belong to an organization which has a gym where they can exercise, participate in games, and finish up with a refreshing shower. If you are not a member of an association which has a physical fitness program, it is recommended that you join one of your choice: the Boy Scouts, the Young Men's Christian Association, the Catholic Youth Organization, or the Young Men's Hebrew Association. These organizations are of genuine value in your physical and spiritual preparation for adulthood. In addition, many worthwhile, and often lasting, friendships are made among the members of such groups.

It is a good idea, psychologically as well as physiologically, to have a shower after a workout. Make a practice of taking a quick one, even if you haven't time to soap up and do a thorough scrubbing job. As for bathing at home, most men prefer showers, as they do a better, quicker job. If you have no overhead shower, there are attachments available which can be fitted to any tub.

Use a good-sized natural or artificial sponge or a washcloth. Use a small handbrush for scrubbing hands

and feet, one with medium stiff bristles which won't irritate or abrade the skin. After you have rinsed off, dry yourself thoroughly, and pat on some body talc, especially under the arms and between the toes.

Particular attention should be paid to the feet, which should be washed daily, whether or not you bathe that frequently. Scrub the toes with the handbrush. Keep the toenails trimmed, cutting straight across to avoid ingrown nails, which are painful and may become infected. The bacteria of athlete's foot, common in adolescence, live harmlessly on the skin until one's resistance is lowered. Then the fungus blossoms. Keeping the feet dry is the best method known for rendering the fungus harmless. It is advisable to put on fresh socks and alternate your shoes daily so that they have a chance to air out. If athlete's foot persists, have it treated by a physician.

Avoiding Corns and Callouses

Since the foot size changes rapidly during adolescence, be certain that your shoes fit correctly, checking them several times a year. Incorrect fit causes rubbing that leads to blisters, callouses, and corns. Such annoyances will hamper your athletic activities, and may turn into something more serious if not treated by a doctor or podiatrist. An important point to watch out for is that your shoes are wide enough to accommodate your feet comfortably. Shoes handed down from an older brother are, though economical, not a wise practice because of the likelihood of improper fit.

The condition of your feet can affect your posture as well as your general appearance. Poorly conditioned feet and improperly fitted shoes make you twist your body out of line in an effort to ease the discomfort. For an athlete, scrupulous care of the feet is imperative. It is also a prime requisite for all who wish to be physically fit. In most sports your feet bear the brunt of the strain, and their ability to perform depends largely upon their condition. One of two British sergeants who hiked from San Francisco to New York—in 66 days, 4 hours, and 17 minutes—said at the end of the trip: “The feet are the most important thing in the world. It doesn’t matter how fit you are or how strong—if you haven’t got a good pair of feet, you haven’t got a thing.”

Here are some exercises which will strengthen your feet, and relax them when they are tired.

1. Place some marbles on the floor. Put your toes on top of them. Lift up one foot while raising the marbles in your clenched toes. Return marbles to floor without dropping them. Repeat with other foot.
2. Turn your ankle around until your foot has moved in a semicircle as far as it will go. Turn each foot separately, then the two together, moving them in opposite directions.
3. Stretch your toes backward and forward.

Haircut and a Shave

Since many males, both young and old, have forgone the wearing of a hat, grooming of the hair has a more

noticeable effect on personal appearance. The time to take good care of it is now, while you possess it, as you may have inherited baldness, which you can do nothing about except to wear a toupee. Shaggy hair around the ears and the nape of the neck ruins an otherwise neat appearance, so go to a barber every two weeks. Brush your hair for five minutes each day, but not too vigorously. This scalp massage brings out the natural oils, which keep your hair in place, give it a sheen, and also minimize dandruff. Wash your hair under the shower once a week if it is normal, less often if dry, and more frequently if oily. Use a liquid shampoo, and if you are troubled by excessive dandruff, try tincture of green soap. Be sure to rinse out all the soap, as leaving it in leads to dullness and dandruff. Though crew cuts are popular, if your hair has a natural curl you might try wearing it a little longer. Use a hair lotion, if you like, but select one that is sparingly perfumed, and don't be too liberal with it. A pocket comb is one of the two toilet articles which a man should always have with him, the other being a nail file.

When we are young, we look forward with anticipation to the time when we will begin shaving. Hair growth on the face is a sign of masculinity, but it doesn't make one more of a man, any more than a youth suddenly becomes a man on his twenty-first birthday. To shave, first wash your face with warm water and soap, and then apply the lather. Tighten the blade in the safety razor as far as possible; then loosen it very slightly if you want a closer, smoother shave. An electric razor might irritate your skin at first, but after a short

breaking-in period, you may find that you prefer it to the blade safety razor.

Beards are not prevalent today, except among artists. Mustaches are more common and usually small, though John Roy of Glasgow, Scotland, claimed that his had a span of 16½ inches. When facial hair reaches its maximum rate of growth, it is advisable to shave every day. Some men don't shave when they are just going to hang around the house, but one should look as presentable to one's family as to others. Shaving daily is an important part of personal grooming.

Your Sweet Tooth and Others

Most people have a fear of going to the dentist. If you dislike visits to the dentist, you can make them less frequent by keeping your teeth clean. This means brushing them after meals, rather than before, to dislodge food particles. If you are unable to do so after lunch, rinse your mouth with water, and brush your teeth as soon as you get home.

Serious causes of tooth decay among youngsters are concentrated sweets, especially candy, soft drinks, and chewing gum. Candy is the worst offender. As mentioned in the chapter on diet, we consume over twice as much sugar and sweets as we should, which is bad for our system and even worse for our teeth. You will eat candy upon occasion, of course. But try to have less of it, and in eating chocolate, select the semisweet or bittersweet varieties. Eat ice cream, not chocolate-coated on a stick, but packaged in a container. While gum contains only a relatively small amount of sugar,

frequent chewing supplies a steady stream of sweet saliva that results in gradual tooth decay. And, too, gum chewing is a most unattractive habit which detracts from an otherwise pleasant expression.

In recent years, tests have been made with sodium fluoride to prevent or minimize tooth decay. While the general public doesn't seem to mind trying fluoridation if they have a choice in the matter, some communities have objected to treating the water supply with fluoride, in which case they get it in their drinking water whether they want it or not. Meanwhile, there have been a number of favorable reports on this new treatment. Drinking flouridated milk brought about an 80 per cent reduction in dental decay among young children, according to Dr. Louis Rusoff, after a five-year study. And figures issued by the U.S. Public Health Service indicate a decrease in cavities, particularly among children, in communities using fluoridated water.

The Number One Skin Problem

Acne, evidenced by blackheads and pimples, affects 75 per cent of all adolescents, usually appearing on the face, neck, and shoulders. Its exact cause is unknown, but it is believed to be principally due to the increased activity of the oil glands during the period of puberty. Acne ordinarily disappears by or before the twenty-fifth year. Meanwhile, young men and women suffer the embarrassment of facial blemishes, even though they make every effort to look their best.

A blackhead is solidified oil in the duct leading from

the oil gland to the surface of the skin. The oil in the blackhead contains sulfur which, when it meets with the oxygen in the air, forms a black chemical compound. Contrary to popular opinion, a blackhead is not imbedded dirt. Since it blocks the normal outlet for natural oil, an inflammation is set up which results in the familiar red elevated pimple, or "hickey," of acne.

Acne can be aggravated by eating too many fried, greasy, or fatty foods. While the condition is in an eruptive stage, candy and soft drinks should be stricken from the diet. Bowel movements should be regular and, if not, a mild laxative may be taken, though not over an extended period unless prescribed by a physician. The affected areas should be washed regularly in warm water, using a mild soap and a soft-bristled skin brush.

Plenty of fresh air and sunshine are recommended. A light sunburn, which causes peeling, is helpful, as indicated by the fact that acne usually subsides during the summer. Care should be taken, however, to avoid overexposure. Brunettes can usually stand more sunlight than redheads and blonds with fair skin. Keep your head covered while sunbathing, and make the periods short until a tan begins to appear. Don't get dehydrated: drink water whenever you are thirsty, even if you have to leave the beach for it. Certain lotions and pills have recently been developed which claim to tan the skin without sunlight. They may be harmful, and should not be used without medical approval.

Do not, under any circumstances, pick or squeeze pimples as it will invariably aggravate the condition, and perhaps result in permanently scarred skin tissue.

If blackheads develop into pustules, consult the family doctor.

Meanwhile, continue your daily calisthenics faithfully, and get plenty of outdoor exercise. Watch your diet, avoid sweets, and your complexion should improve. As has been said, three out of four adolescents suffer from acne, usually over a protracted period. A great deal can be done for acne now, and if you are troubled by it, your family doctor will be able to help you.

Clothes Make the Man

Mark Twain's maxim is often misunderstood to mean that fine clothes are the mark of a gentleman, which is obviously untrue. What this great American humorist really said was that men who are clothed have more influence in society than those who are naked. But while clothes in themselves do not make the man, they do appreciably influence the impression he makes on others. When we first meet someone, we naturally judge him by his appearance. Later, when we get to know him better, our opinion is influenced by his personality and his character. Meanwhile, first impressions are of great importance in our association with others. "A man," the founder of the Statler hotels said, "may wear a red necktie, a green vest, and tan shoes, and still be a gentleman." But while it is true that conservative dress would make him no more of a gentleman, he would be more acceptable in society. If a youth were that loudly dressed in applying for a job, it is a certainty that he would not get it, unless as a circus clown. The point to keep in mind is not to go to extremes in the selection of

clothes. It is estimated that there are three trillion separate memory impressions in the adult mind, and no two people in the world are exactly alike, not even so-called identical twins. So you can be an individual, with your own personality traits, without wearing bizarre clothing. The thing to do is to be yourself and, at the same time, have consideration for the society in which you live.

Today man dresses more comfortably than he did in the past. The high, stiff collar and the tight jacket are out, and shoes are more sensible. To be dressed neatly and comfortably is all that is required. A jacket with contrasting slacks is acceptable except for formal occasions, and a hat need not be worn. The aim is to look as well as you can, and be at ease. Then you need not be hesitant to mingle with others, whoever they may be.

The personnel manager of a large manufacturing plant recently made some observations about young men applying for their first job. "First," he said, "I watch the way the applicant carries himself when he comes into my office; I can spot the man who is physically fit every time. When he sits down I look at his haircut and his fingernails. Then I walk around him and glance at the back of his shirt collar to see if it is clean. As I sit down again, I offer him a cigarette to find out if he smokes. He may refuse it and be a smoker anyway, but he has shown that he is not overly nervous, and has some control over the tobacco habit. The last thing I do is study his face. It isn't his features which interest me, as he was born with them. I am par-

ticularly concerned with his facial expressions and, secondly, what he does with his hands. I don't care whether the suit he is wearing cost twenty-five dollars or a hundred, if he is neatly dressed. First I determine whether he is physically fit and practices personal hygiene. If I am satisfied with these two factors, then I begin to explore his mind."

Personal hygiene is a combination of two purposes: the maintenance and preservation of physical fitness, and its presentation in human society. When you have attained them to the best of your ability, you have safely reached third base and are ready for the dash to home plate.

chapter 6

Playing the Games

OF THE VARIOUS team games played in the United States, there is one which outranks them all in at least four respects: it is played more frequently, has more active participants, is played indoors and outdoors, and can be enjoyed twelve months in the year. The game is, of course, basketball. Baseball, though called "the Great American Game," originated in England, and so did tennis, boxing, and golf. A game similar to football was played by the ancient Greeks. Ice hockey was developed in Canada. Basketball and volleyball are the only popular sports that were originated in our own country. Both were invented by the YMCA, and they are now in the official Olympic Games program.

Back in 1891, Dr. James Naismith was an instructor at the Springfield Young Men's Christian Association College in Springfield, Massachusetts. Previously, he had been an athlete at McGill University in Montreal, Canada. Observing his Y students working out in the gym in the middle of winter, he wondered if there wasn't some indoor game they could engage in while it was too cold and stormy to play outside. Noticing a couple of old peach baskets in an alley, he hung one up at each end of the gymnasium from the balcony. Then he tossed his students a ball and suggested that they try to drop it into the baskets. It was soon discovered that climbing up and retrieving the ball from the baskets slowed down the game, and the bottoms were knocked out so the ball would drop through. That is how basketball was born. Today it is known and played all over the world, having been introduced by YMCA physical directors, who introduced physical education and sports and games in many countries, and by our soldiers in two world wars. The game was further popularized by the amazing exhibitions of the Harlem Globetrotters.

Basketball is popular because it is a fast, exciting game for both participants and spectators. Its fascination is also due to the fact that it is a fundamentally simple team sport, much easier to follow than baseball and football. It can be played and enjoyed by youngsters, though those below their teens require supervision. And it isn't necessary to be tall and lanky, though height is important for a star. The Dover Basketeers of Dover, Ohio, are age eleven to fourteen, av-

eraging only 5 feet 2 inches in height and ninety-five pounds in weight. Nevertheless, they put on astonishing ball-handling exhibits with their passing drill, tricky dribbling, and lay-up shots. You can play basketball, whatever your present growth. The basic safety rule, as with all team competition, is to play against fellows around your own stature. That way you have a fair chance to win and, even if you lose, you'll know that at least you weren't hampered by size.

Volleyball is another game which has grown extensively in popularity, now being played by an estimated sixty million people around the world. It, too, was invented by a YMCA physical director, at Holyoke, Massachusetts, in 1895. Properly played, it calls for agility, stamina, and keen strategy, making it an exciting spectator as well as participant sport. It is played by both sexes at all ages, and has the advantage of appealing to people long after they give up basketball, football, and similar activities. When volleyball is played by champions, it requires the very best in physical fitness and skill.

Athletics for Everyone

The emphasis today in athletic programs is that they be open to all, including those who learn slowly and the handicapped. According to Dr. George Maksim, "They should be fun and part of the joy of living, and serve as a wholesome outlet for the normal energy and exuberance of the young, as well as a constructive and beneficial learning experience." Too often certain students feel left out: those who wear eyeglasses, short

boys, and the overweight. They need to enter into the spirit of competitive games even more than the ones without such physical characteristics, and they should be given understanding and encouragement. If you are in tip-top shape, urge those not so fortunate to join in your games. And if you have some handicap, whatever it may be, don't be hesitant in entering an athletic program. Even if you don't win the game, you will have won the fun and confidence of playing it.

The natural athlete's talent appears to be superior co-ordination; part can be learned, and some seems to be a gift. But the greatest attributes of an outstanding athlete are will power and persistence. These qualities are within the reach of all. You can attain a degree of physical proficiency the same way the athlete does, by making up your mind to it, and by constant practice. The rewards are a body glowing with health, plus the fun of competing well in sports and games.

There is no single standard of performance which every youth must reach to be "normal" for his age. The important point is that you improve with training and increasing years, regularly competing against your own record and trying to better it. Each person is different in body build, rate of growth, and in experience. Therefore, the only one you can compete with on an absolutely equal basis is your own self. In trying to beat your previous record, should you fail, you lose to yourself. Do you know anyone you would rather lose to?

All young men like to test their strength and try to improve it. Part of it is building up your muscles by increasing their size. If you repeat a movement, giving it

all you've got, your performance will certainly get better. But, according to some recent experiments, the improvement is not entirely due to enlargement of the muscles. Swimmers who worked nearly to exhaustion every day for months progressively lost strength. It has been found that a thousand muscle contractions a day may have no effect whatever on strength. What you get from training, the researchers concluded, is not only a workout of certain muscles, but the ability to overcome your natural reluctance to exert yourself. In other words, in repeating a motion, you learn that if you press more, you will not hurt yourself, and that any discomfort will be only temporary. The untrained human body possesses untapped limits of capacity, of which strength is only one; endurance and speed are others. With experience, you are able to overcome the instinctive brake you put on to protect yourself.

There are also psychological means of increasing strength. Everyone has noticed the difference in strength of a youth during a practice session and in an actual contest. In a game, his excitement and will to win lead him to press himself beyond the point he was willing to go when he was just practicing. Again, this is an instance of the effect of the mind and emotions on the body. Another example is evidenced in times of danger when people perform physical feats which, under ordinary circumstances, would be impossible for them to achieve. During an experiment, volunteers were found to be able to exert more strength after they heard a yell or a pistol shot than when there was no noise.

Selecting Your Sports

Different sports and exercises make you more or less strong and fit, depending on how strenuous they are, and what muscles and skills they require. Handball and strenuous swimming rate high in strength, agility, and endurance development. On the other hand, golf and archery rate low in strength and endurance. An excellent method of rating the physical fitness values of various sports has been devised by Dr. Arthur H Steinhaus, dean and professor of physiology at George Williams College. Dr. Steinhaus points out that sports can be invaluable in keeping a person fit, provided that he participates in one or more which meet all of the basic needs in strength, endurance, and agility development. Use his ratings to determine whether your favorite recreational activities are meeting all of your basic fitness needs. If one sport doesn't measure high in all fitness categories, select the appropriate additional sports to make up for the deficiencies.

Physical Fitness Ratings of Popular Sports

SPORT	Endurance	Agility	Strength		
			Leg	Abdomen	Arms and Shoulders
Archery	L	L	L	M	H
Badminton	H-M	H	H	M	M
Baseball	M	H	H	M	M
Basketball	H	H	H	L	L
Bicycling	M	L	H	L	L
Boating	M	L	M	M	H
Bowling	L	L	M	L	M

Field Hockey	H	H	H	M	M
Football	H	H	H	H	H
Golf	L	L	M	L	L
Handball	H-M	H	H	M	H
Heavy Apparatus					
Tumbling	L	H	H-M	H	H
Hiking	M	L	H	L	L
Horseshoes	L	L	L	L	M
Judo	H	H	H	H	H
Lifesaving	H	M	H	H	H
Skating (Figure)	M	H	H	L	L
Skating (Speed)	H	M	H	M	L
Skiing	H	H	H	M	M
Soccer	H	H	H	M	L
Swimming					
(Competitive)	H	M	H	M	H
Swimming					
(Recreational)	M	L	M	L	M
Table Tennis	L	M	M	L	L
Tennis	H-M	H	H	M	M
Track					
(Distance)	H	L	H	M	M
Track					
(Sprints)	M	M	H	M	M
Volleyball	L	M	M	L	M
Wrestling	H	H	H	H	H

Fitness Values:

H—High

M—Medium

L—Low

Competitive Sports

What part does competitive athletics play in your general development, mental as well as physical? A re-

searcher at Pennsylvania State University gave five personality tests to a group of boys under fifteen years of age who had engaged in various competitive sports, including Little League baseball. He found that these boys, compared with those who had not participated in competitive games, had broader interests in science, music, social studies, home arts, and active and quiet play. They were also superior in traits of co-operation, friendliness, integrity, leadership, and critical thinking. In another study, teachers rated athletes higher than non-athletes in adjustment, physical education skills, and academic work. In a third instance, talks with the parents of athletic youngsters indicated that among the benefits of competitive sports were development of co-operation, confidence, leadership, consideration for others, sportsmanship, sociability, and a sense of responsibility.

These studies seem to make out a good case in favor of competitive athletics for young people. However, you shouldn't simply accept them and just let it go at that. Before making a decision of any kind it is first necessary to look at a subject from all possible points of view in an attempt to reach the proper conclusion. "There are two sides to every question," is an old, familiar saying. Often, in fact, there are more than two. In this instance, it is difficult to determine "which came first: the chicken or the egg?" Did these youths develop such admirable traits as a result of competitive athletics? Or do the studies only show that youngsters already possessing these qualities are inclined to go in for competitive sports? All we can be reasonably cer-

tain of at present is that, as far as these particular studies are concerned, there was no evidence of ill effects from this kind of competition.

Life in our society is highly competitive. Therefore, to shelter a youngster from competition during his formative years, and then put him out on his own in an intensively competitive world, does not appear to be as wise as accustoming him to competition during his years of growth. It seems obvious that an overly protected youth is bound to receive some damaging blows when he is suddenly thrust into adult society. From this view, the sensible procedure is to gradually accustom yourself to meeting the problems you must face, so that you will be "toughened up" when you reach maturity.

One of the principal disadvantages of competitive athletics lies in the nature of competition itself, namely, that someone is going to be left out. There is generally only one varsity team, with its second string, and one junior varsity team for each sport. Those who have the greatest skill will win places on the various teams, leaving many unhappy aspirants on the sidelines. Another unfavorable aspect is the star system, which is almost inevitable. Every position on the team does not offer equal opportunity for grandstand plays; some players become heroes, while others are ignored.

BE A GOOD SPORT—WIN OR LOSE

In sports competition, it is only natural to applaud the winners. But what about the losers? You very likely remember that the Levittown, Pennsylvania, team won the Little League World Championship in 1960.

You may recollect that Joe Mormello, Jr. pitched a thrilling no-hit game, with a final score of 5 to 0. But perhaps you don't remember which was the losing team. We all tend to forget "who came in second." Although the Fort Worth, Texas, team didn't win, they fought their way up to the Little League world series, and they deserve our applause, too.

Naturally there is disappointment in losing a contest. But the disadvantage would be lessened if we saved some of the glory for those who do not win. Have you ever been a spectator at a game and, when it was over, gone to the losing team and congratulated them for doing their best? Try it next time and you'll be touched by their surprise and appreciation because someone had the heart to give them an encouraging word.

In team competition, each game has as many losers as winners. In track and field, there is only one winner and a string of losers. You compete to win, of course, but even if you don't, you deserve credit for having "played the game."

THE CLASSIC OLYMPIADS

Let us look at the Olympic Games, the classic in international amateur athletics. The earliest on record were held in 776 B.C., continuing for well over a thousand years, until they were discontinued in 394 A.D. The first modern Olympiad took place at Athens in 1896, and they have been held every four years since then, except for three cancellations during war years.

Eighty-three nations competed in the 1960 games at Rome, Italy. The United States won thirty-four gold

medals. We had the best track and field team that ever represented our country in Olympic competition. Our running star was Ray Norton, who was generally considered a "sure thing" for three gold medals: the 100 and 200 meter sprints and the relay. He had trained hard, was filled with confidence, and ran sensationally. However, when the shouting was over, Ray had lost in both sprints, and caused the disqualification of his winning team in the relay. The American spectators were stunned at this unexpected catastrophe. But none was as desolate as Ray Norton himself, who was inconsolable. With tears in his eyes, he declared that he was finished with running forever. That was the perfectly natural immediate reaction, of course. But Ray Norton pulled himself together, and Bud Winter, his coach, announced that Ray was young enough and good enough to be first choice again to win those three gold medals at Tokyo in 1964.

Ray Norton is a stirring example of the heartbreak an athlete sometimes has to go through. He didn't even place second in those sprints; in both of them he came in last. But that is no reason why we should not applaud him for his gallant effort. Our encouragement will spur him on to do better the next time. We should always give a slap on the back to those who don't win. When your team loses, or you come in second, or even last, take it in good spirit, and train to make a better showing another time. If we all, whether participants or spectators, take that positive attitude, then the basic psychological disadvantage of competitive sports will, in large measure, be overcome.

THE PROBLEM OF AGE VERSUS SIZE

There is another problem involving game competition. In discussing the period of growth, we saw that not all boys grow at the same rate. One may increase quickly in height and weight at twelve years of age, while another may be a shorty until fifteen, and then shoot up fast. Among Little Leaguers, for example, it was found that those on tournament teams, although only eleven and twelve years of age, were as tall and heavy as the average American youth fourteen and fifteen years old. In other words, their biological age was three years greater than their chronological age. This, of course, does not mean that the boys grew faster because they played baseball. It simply signifies that their body growth occurred earlier than in the average youngster; and since they were taller and heavier, they could throw better, hit harder, and run faster, so naturally they were selected for the tournament teams.

These bigger boys can pitch a baseball at 70 miles an hour, which is equivalent to college pitching, and compares favorably with major league pitching of 90 miles an hour. Some of them can swing a bat at 100 miles an hour, as compared with Mickey Mantle's swing of 115 miles per hour.

This difference in growth rate puts the youngster who has not yet started to spurt up at a distinct disadvantage. Although he is playing with others in the same limited age group, he often finds himself up against players who are appreciably taller and heavier than he is. That means he is more liable to suffer a physical injury. The only way to avert, or at least mini-

mize, this possibility is to select teams, not according to their actual years, but rather in accordance with their biological maturity. Doctors and physical educators are deeply concerned with this problem, and though a solution is not easy to achieve, some methods of taking biological growth as well as chronological age into consideration have been worked out. Dr. Harold T. Friermood, Senior Director for Health and Physical Education, National Board of the Young Men's Christian Associations, says, "The National YMCA Athletic Achievement Program for Boys consisting of ten events evens out final score differences through the use of scientifically developed scoring tables that take account of age, height, and weight of each participant. Chronological and physiological differences as well as natural ability, determination, and effort are all factors that contribute to the final score of each individual boy. A personal performance record kept season by season charts growth, development, and progress and also motivates continued physical activity."

As previously suggested, protect yourself, and improve your chances of winning, by playing with those of about your own physical ability and size. If your growth rate is slow, the chances are that you won't have a chance to get on the tournament teams, at least for the time being, but you can still have as much fun as the bigger fellows.

This same biological disadvantage usually applies to basketball as well. Unless you are very fast on your feet, you almost have to be fairly tall to get on a squad. It is also a major factor in all other forms of team play.

However, the difficulty is less in games where there are fewer competitors, such as badminton, handball, horse-shoe pitching, table tennis, and bowling. In the latter, for example, you can play a "twosome" with a chap about your own size. He may be a couple of grades ahead or behind you in school, but that doesn't matter because, whatever the difference in your mental maturity, you are concentrating on competing in a fairly even match of strength and ability. Then if you lose, it won't be because of his greater height, weight, or strength, but simply because he bowled better than you did, which should be the primary factor in all sports competition.

Creighton J. Hale, Ph.D., Director of Research for Little League baseball, has summed up the whole problem of variations in maturation, which is the process of coming to full development. "In establishing standards of physical fitness," he wrote, "it would seem advisable to keep in step with the growth patterns of our children, and not make the fitness of the sixteen-year-old boy that of a fourteen-year-old, and the fourteen-year-old that of a twelve-year-old. Certainly there is need to reevaluate the entire physical program, particularly that of the schools, on the basis of the precocious maturation of American children."

Athletics and the Doctor

Some authorities, and parents, too, feel that competitive play may have harmful physical effects, especially among those who have not yet reached teen age. They are particularly concerned about the possibility of per-

manent damage to the heart, and their view is understandable. However, Creighton J. Hale has pointed out that "Scientific evidence indicates that a normal heart cannot be injured by strenuous physical activity." And in his book *The Human Machine*, Adolph Abrahams says that an increasing number of physicians agree with this statement: "You need not entertain the slightest apprehension that ill effects will result from athletic training, nor fear any reduction of life expectation. . . . There always will be alarmists who talk of 'heart strain,' ignorant of the ability of a healthy heart to deal with the greatest stress and meet all demands imposed upon it. All heart specialists agree on this latter conclusion." While the American Medical Association does not recommend regularly scheduled interschool and intercommunity contests for pre-teen-agers, it has stated that "Competition is an inherent characteristic of growing, developing children. Properly guided, it is beneficial and not harmful to their development."

Summing up, the concensus of professional opinion is that youngsters under thirteen can, and should, enter into various sports and games within their own student body, but they should not force themselves too hard and attempt to get on regular teams until they have become teen-agers. As Dr. Maksim has said: "All sports programs should give all children an opportunity to participate, especially those with seemingly less natural aptitude. The natural athlete," he adds, "will emerge despite any programs."

Before selecting your own sports activities, first get a clean bill of health from your family doctor. Then

take into consideration your age and size, the sports you have a liking for, and any natural physical abilities which you may possess. Also check Dr. Steinhaus' physical fitness ratings to make sure your activities are diversified so that your whole body is exercised. And discuss the role of sports in your physical fitness program with your parents. If they should have any qualms about it, ask them to read this chapter or, better yet, the whole book. Then talk it over with them, and come to a reasonable decision as to the nature and extent of your physical activities for the present, and also for the years ahead.

chapter 7

Guarding Your Physical Fitness

THERE IS an old story, which has been going the rounds in this country for many years, concerning medical practice in ancient China. According to the tale, Chinese physicians charged a patient when he was well, and received no fee when he became ill. While this is an interesting and amusing speculation, the trouble with it is that it has no foundation in fact. Doctors, in China as elsewhere, are, like all other professional people, paid for services rendered. And we are fortunate that this is so, for if the average reasonably healthy American were to pay his doctor while well, instead of when ill, his medical expenses would be far greater than they are today.

The truth of the matter is that, if you take full advantage of the services medicine offers, you *do* pay your doctor for helping to keep you well. Regular medical check-ups are the most valuable investment that you can make and, considering the incalculable benefits, the least expensive. Two of the most important aims of the medical profession today are (1) preventive medicine in general and (2) early diagnosis in particular. Medicine is one of the professions in which the practitioner wants to serve you so satisfactorily that you will have less need of him. Though his income is reduced thereby, he does everything possible to keep you well.

It has been suggested that you have periodical physical check-ups during your growing years. A thorough study covers your past medical history, and that of your parents and ancestry. The examination explores structure, anatomy, physiology, and psychology, as evidenced in your body and mind. Such a check-up is of particular importance during adolescence because, as has been said, no two individuals grow up in just the same way. Have your regular physical, and you will enjoy its benefits, not only now, but throughout your entire life.

How Much Sleep?

During our childhood, most of us had it drilled into us by our parents that we must have eight hours of sleep. Mothers worry about youngsters who don't "pound the pillow" for that length of time each and every night. However, this concern is often needless.

As has been emphasized in these pages, you are a particular personality, and there is no other person on earth quite like you. It is fortunate that this is so, or we would all go through life acting in exactly the same way.

Because of this childhood ruling, some of us worry about not getting enough sleep. However, in this instance—and in many others, for that matter—our body is wiser than our mind, Mother Nature takes care of certain matters without our having to pay them any particular attention, and if we interfere, we may just upset the applecart. The fact of the matter is that the body instinctively knows how much sleep it needs and, if left alone, will get it. It is true that preadolescents and teen-agers usually require more sleep than adults. This is simply because when you are young you are going through your most active period of life. Remember what has been said about the ingestion of energy in the form of food, and the expenditure of that energy in various activities. When you have used up a lot of energy, your body demands rest, and you normally sleep until you are sufficiently refreshed and ready for another active day.

Young people usually have no trouble falling asleep, unless they have been stimulated immediately before bedtime and are in such a state of excitement that they can't calm down. To avoid this situation, the best thing is to slow up for an hour or so before going to bed. Listen to soothing music, read, or pursue a quiet hobby. This will also go a long way toward preventing nightmares. Intensely dramatic television shows often cause

disturbed sleep and should not be watched shortly before bedtime.

Many adolescents have no trouble falling asleep, but do have a struggle waking up and getting to school on time. If this happens to you, it doesn't necessarily mean that you haven't had enough rest. The cause may well be psychological, signifying that you just don't feel like getting up and facing another long day of responsibilities in school and at home. You can easily test yourself on this. Note the next time you are told that on Saturday, instead of doing whatever you like, you will have to spend the whole day on various chores around the house. The chances are very likely that on Saturday morning you won't want to get out of bed. This reaction is perfectly natural, but if continued will develop into lazy habits which are not conducive to your own physical fitness and welfare.

Sleep is not always a cure for being tired. Poor health, improper diet, or lack of exercise, which leaves you feeling sluggish, can be the cause of fatigue; and no amount of sleep will correct it. Sometimes problems in school or disagreements among friends will keep you awake. More often, however, they will make you feel a fatigue which is still present, even when you first get up in the morning after having had a good night's sleep. This state ends with the passing or right handling of the particular problem, provided that you are eating and exercising properly, and are not physically ill.

Boredom can cause sleepiness, and the prescription for that is not, of course, additional sleep, but more stimulating activity. The common belief that work tires

and idleness rests you is not entirely true. When you are happily involved in an interesting project, especially if it's something you're sharing with others, you don't get tired until your body actually needs rest, and not always even then. To put it bluntly, nobody should ever be bored, and especially so during youth. As Robert Louis Stevenson pointed out, "The world is so full of a number of things, I'm sure we should all be as happy as kings." And remember, the great writer who penned those lines struggled against tuberculosis all his life, and finally succumbed to its ravages at the age of forty-four. The crux of this whole matter of sleep is that if you keep yourself physically fit and are psychologically well balanced, you will naturally get as much rest as your body normally requires.

Infectious Illnesses

When you catch an infectious disease, you get it from someone else. You always take some chances of catching infections, just as you take chances of receiving injuries when engaged in sports. However, you can protect yourself to a certain degree in both instances.

There are two forms of immunity which combat infectious diseases. One is the natural method by which the body develops its own immunity against an infection. By a chemical process, it produces a resistance to certain illnesses. If this were not so, the human race would have long ago ceased to exist. The other method is by the use of vaccines to develop resistance to invading bacteria and so prevent infection.

The most frequent infection we are subject to is the

so-called "common cold." At least a hundred million of us suffer from it twice a year or more. There are different kinds of colds, and most of them are contagious. More research has been done, and more written, about colds, than about any other human illness; but there still is no sure cure for a cold.

Colds are caused by a virus, and the illness lasts from two to seven days. Young people have about twice as many colds a year as adults. It is believed that about half of all normal people are resistant to colds, but the exact nature of their resistance is unknown. Mothers often tell a youngster to bundle up well before going out in winter weather "so you won't catch a cold," but chilling in itself will not bring on a cold. The only way to avoid colds is not to catch them, to have a healthy resistance. If you are subject to frequent colds, have your family physician examine you to find out what is keeping down your resistance.

Injuries from Sports

There is great concern, and rightly so, over the possibility of injury in athletic activities. Physicians, physical education instructors, trainers, and coaches have all been working on this problem for years. Although accidents can never be entirely eliminated, the aim is to reduce them to the lowest possible degree. What has been done in recent years proves that they can be greatly minimized by giving sufficient attention to their prevention. Professional supervision comes first. They can also be sharply reduced by the exclusion of pre-adolescents from such contact sports as boxing and

football. As Dr. J. Roswell Gallagher has pointed out in *Medical Care of the Adolescent*, "Though the incidence of injuries in some sports is high, in the majority of sports the incidence is low. Fatalities are few: over a period of about thirty years, there are records of 43 deaths from baseball, 22 from football, 21 from boxing, and 7 from basketball, having occurred in Metropolitan New York." And Dr. Don H. O'Donoghue, writing in the *Journal of Health—Physical Education—Recreation*, said, "Athletic injuries are becoming less frequent. Severity of injuries is less. Periods of disability are shorter. The degree of recovery is more complete."

Protective Equipment

Good equipment is of great importance in the prevention of injuries. Proper headgear is a definite requirement. While lightweight headgear is protective to a degree, it cannot serve its purpose if the suspension apparatus does not keep the head from contact with the inside of the helmet. Once effective equipment is obtained, it should be properly worn, and supplemented by taping or wrapping, as required. Here are some of the protective devices which help to prevent injury in various exercises and sports.

Eyeglasses. When glasses must be worn, they should have shatterproof lenses. In such sports as basketball and hockey, they should be further protected by a wire mask.

Mouth Guards. The American Dental Association recommends the wearing of mouth protectors in contact sports, especially boxing and football. Studies at vari-

ous schools have shown that their use appreciably reduces dental injuries.

Bar Bells. Increase the weight gradually, only a few pounds at a time. Handle the bar bell so that your feet are never under the weights.

Baseball. Outside of the catcher's equipment, the only safety equipment worn by the other players until recent years was the baseball mitt. Now in the major leagues, players are required to wear a protective helmet when at bat. The new Little League helmet, designed by Dr. Creighton Hale, is an improvement on the Rickey helmet used by professional players.

Basketball. In this sport, the part of the body most likely to suffer injury is the knee. Coaches often tape them, or recommend the wearing of an elastic bandage to support the joint. To minimize slipping and falling, shoes should be discarded before the soles have worn smooth.

Football. More injuries result in football than in any other sport, almost four times as many as in basketball, which rates second in number of injuries. The primary problem in football is that though the safety gear is substantially effective in the prevention of injuries, it frequently injures other players, acting as a sort of battering ram when one player comes in violent contact with another. Cleats can also result in injuries. An important safety measure in the wearing of football equipment is to make sure that it fits properly; otherwise it will not provide the full protection intended. Taping helps to avoid injury to the ankles and knees. Helmets, shoulder pads, hip and kidney pads, thigh and

knee pads, are as much a part of the player's working gear as the shoes and the football. If you play football, be certain that you have the best and latest equipment, and that it fits well.

Skiing. The safety bindings introduced in recent years have been a great blessing to skiers. Get those which release both toe and heel so that when you fall your foot will come free of the ski. Your boots should be comfortable and give support to your ankles. Select gear for recreational skiing, not that designed for racing.

Soccer. The shins are the most vulnerable spot in this game, and light shin guards are usually worn by all players. If shoes are cleated, the cleats should be made of rubber to avoid injuring others.

Trampoline. This form of exercise has recently achieved great popularity. Here are the safety suggestions issued by the Association of Casualty and Surety Companies:

Master the basic bounces before trying the difficult stunts.

Never "travel" during bounces—stay in the center of the bed.

Don't jump from one trampoline to another.

Don't interfere with other jumpers.

Land with feet spread apart to the width of your shoulders.

Break the force on the bounces by bending the knees.

Youngsters should jump only under supervision.

Don't jump with another person.

Don't indulge in horseplay.

Step on and off the trampoline—don't jump on and off.

Rest when you are tired. Don't overdo.

Safety First. In all games, and especially in contact sports, play well, play to win, and always wear well-made and properly fitted safety equipment.

chapter 8

Habits That Can Hurt

THE MEDICAL profession knew, long before the advent of psychology, that the youth is father to the man. Whether you are ten, sixteen, or in between, you are gradually accepting more and more responsibility for your actions. What your customs and habits become is, in large measure, up to you. Those who are living with but one parent, or with neither, sometimes have to carry the full weight of their decisions at a relatively early age. Whatever your situation may be, the habits you form throughout adolescence will have a substantial effect on the kind of man you turn out to be.

The harmful practices discussed in this chapter are of direct concern to the young man in his mid-teens or older. However, the younger fellow can also read about them with profit, as the knowledge will help him later on when he has to decide whether his life will be affected by these habits.

In keeping physically fit through the years, exercise and diet alone are not enough to maintain a good physique. It is also necessary to avoid certain habits which are known to have a harmful effect upon one's constitution. It is necessary, therefore, that they be fully and fairly discussed so that you can weigh the facts and be guided thereby.

Aids in Athletics

There has been much discussion among the medical profession and in the public press about the use of benzedrine and other amphetamines by athletes in an attempt to improve their performance. The extent of such use is unknown, though it is believed that it is more prevalent among European athletes than in the United States. The problem involves two factors. Can drugs help an athlete and, if so, should their use be sanctioned?

Answering the first question, Dr. Peter V. Karpovich, in his *Physiology of Muscular Activity*, tells of studying the reactions of two groups of men in running, swimming, and treadmill tests, some of whom were given benzedrine while others received only a placebo, which is an inactive pill having no effects whatever. Dr. Karpovich reported that "No beneficial

effect of amphetamine was observed on speed, endurance, or recuperation from fatigue caused by the first run. As a matter of fact, the fastest time in some events occurred after administration of a placebo, and the runners and the coach begged for more of those 'miracle pills.'” Other tests which have been made with various drugs have resulted in the general conclusion that they are of no value in athletic contests and may, in some instances, be definitely dangerous.

The stand of the American Medical Association is that no aids of any kind should be used in athletics, including drugs, vitamins, special foods, and hypnosis. Its statement emphasizes the importance of proper diet and, in conclusion, takes the ethical position that “athletes should enter a contest ready to depend solely upon their own skills and resources, and without resort to artificial stimulants.” The United States Olympic Association, the Amateur Athletic Union, and the International Amateur Athletic Federation, all agree with the AMA, and have announced that “anyone found to be using any drug as an aid to improving performance” will be disqualified from their competitions.

In addition to the risks involved in the use of stimulants, also to be considered is the fact that such use is inconsistent with the practice and ideals of sportsmanship. It is certainly obvious that it would be most unfair, to say the least, in an athletic contest to have one team “pepped up” with an effective stimulant while the other was not. The inevitable conclusion, therefore, is that any such use is unethical as well as dangerous.

Coffee, Tea, and Cola

Caffeine is a stimulant which is in coffee, tea, and in drinks made from the cola-nut, the fruit seeds of an African tree of the chocolate family. It stimulates the central nervous system, speeds up the rate of breathing, and shortens reaction time, thus increasing work output and delaying the onset of fatigue. Cola drinks contain about as much caffeine as in a cup of tea or coffee, one and one-half to three grains, which is the customary medical dosage.

Since caffeine is a mild stimulant, and not habit-forming, a cup of coffee or tea is often used as an aid to those who must undergo prolonged exertion. However, more than three or four cups a day of either can cause restlessness, overactivity, nervousness, dizziness, and insomnia. Many people say that they can't drink coffee at night because it keeps them awake, but there is the possibility that they can't sleep for some other of a multitude of reasons. The thing to do is to find out for yourself how caffeine reacts on your own system, and be guided thereby. And keep in mind that coffee or tea shouldn't be used as a substitute for the milk and fruit juices you need, especially during the growing years.

Tobacco

Unlike the caffeine drinks, cigarettes can become an almost unbreakable habit. This is not due to the nicotine drug alone, but also to psychological factors such as nervousness, shyness, and the like. Caffeine and

nicotine are both alkaloids, but the latter is highly poisonous. As such, it may, especially when tobacco is used to excess, cause serious physical damage, especially to the lungs and heart.

Researchers for the American Cancer Society found that sixty-four heavy smokers died of lung cancer for every non-smoker whose death was due to the same cause. As cigarette consumption rose, the number of deaths from lung cancer leaped alarmingly, increasing almost a thousand per cent within the past thirty years. On the basis of all evidence presently available, the American Cancer Society, the National Cancer Institute, the American Heart Association, and the National Heart Institute, joined in making this public statement: "The sum total of scientific evidence establishes beyond reasonable doubt that cigarette smoking is a causative factor in the increasing incidence of cancer of the lung." The British Medical Research Council made a similar statement, and the American Public Health Service has warned that "The weight of evidence at present indicates smoking as the principal causative factor in the increased incidence of lung cancer."

The above strong statements have been made by highly responsible organizations which are deeply concerned with public health. However, not all authorities agree. On the opposite side of the fence, among others, is Dr. Joseph Berkson, head of the Division of Biometry and Medical Statistics of the world-famous Mayo Clinic at Rochester, Minnesota. "Cancer is a biologic, not a statistical, problem. . . . It is not logical

to take a set of results as confirming the theory that tobacco smoke contains carcinogenic (cancer-causing) substances which, by contact with the pulmonary tissues, initiate cancerous changes at the site of contact." At this writing, the proven cause of lung cancer is still unknown, and there are other factors which may possibly cause lung cancer, such as automobile exhaust fumes and smog.

The effect of smoking on the heart and the circulation of the blood is far from beneficial. Smoking speeds up the pulse rate, raises blood pressure, and generally increases the work of that staunch organ, the heart. It constricts the small blood vessels so that less blood reaches the extremities, accounting for the chronically cold hands and feet experienced by some smokers. There is growing evidence that there is a link between smoking and heart disease. In fact, in one study the conclusions raised the question whether cigarette smoking may not carry greater risk for coronary heart disease than for lung cancer.

What about cigarettes with filter tips? Do they make smoking "practically harmless?" According to Dr. Leroy Burney, former U. S. Surgeon General, filters have very little effect in reducing the tars where the major part of cancer-producing substances is found. Neither have filters been shown to be of value in cutting down other ill effects such as "smoker's cough," which can adversely affect the respiratory ills of asthma, hay fever, and colds. The only thing that a filter tip does is keep shreds of tobacco out of the mouth.

Despite growing evidence of the harmful effects of

smoking, millions of Americans continue to light up, and thousands of young people become new smokers. Why is this so? Many adolescents take up smoking because it gives them the feeling of having grown up, thus symbolizing their entrance into an adult world. Those who feel ill at ease and lacking in poise start smoking to have something to do with their hands, or because they think it looks sophisticated. Others smoke just because practically everyone else does, and they don't want to be different. Some smoke to relieve tension and as an aid to relaxation. Once smoking becomes a regular habit, it is very difficult to quit because the system becomes habituated to the nicotine in cigarettes, so most new smokers become steady smokers for the rest of their lives.

With regard to smoking by athletes, coaches as a rule are against it during training periods. Some people are tobacco sensitive. An experiment conducted by Karpovich and Hale indicated that nearly 40 per cent of young men may be tobacco sensitive, and their speed will be slowed down by smoking. "Since the percentage of tobacco-sensitive men is relatively high," Dr. Karpovich concluded, "a non-smoking rule for athletic teams is a wise precaution which should be firmly supported."

There you have both sides of the smoking problem. There are over sixty million people who smoke tobacco in some form. Today more people are smoking more cigarettes. In the past half-century, the annual consumption of cigarette tobacco per person has multiplied no less than twenty times. Whether you should

smoke or not is a most important decision to make. Discuss it with your parents and be guided by their judgment. Also carefully consider these points:

1. No one has ever advocated cigarette smoking as a means toward good health and physical fitness.
2. Cigarettes are strongly suspected of causing lung cancer and various heart and circulatory disorders.
3. Smoking deadens the appetite and leads to improper eating habits.
4. Careless smoking is one of the major causes of fires.
5. Tobacco smoke is offensive to most non-smokers. Too often, smokers are thoughtless about the feelings of their non-smoking companions, which is not the way to make friends and influence people.
6. Finally, cigarette smoking is an expensive habit. If you become a pack-a-day smoker, it will cost you about two dollars a week, over a hundred dollars each year.

Alcoholic Beverages

Another important decision you have to make in life is whether or not you will drink intoxicating beverages. Seventy-five million Americans drink to some extent, anywhere from an occasional cocktail to the regular absorption of alcohol to the point of drunkenness. Your decision, however, should not be influenced by the fact that three out of four adults imbibe. The sensible way

is to examine what alcohol does to the human body. If you should decide to drink, then you must make up your mind how you will handle the habit. That is where the danger lies. With alcohol, as with tobacco, people start off moderately. A man does not become an alcoholic overnight. First he begins with, say, a couple of bottles of beer a week. After a while he drinks that much every day. Then very likely he switches to wine, which has a higher alcoholic content than beer. Finally, he often ends up drinking distilled spirits: whiskey, gin, vodka, and the like. By then he is a compulsive drinker and, if he is average, consumes ten highballs a week or their equivalent, which amounts to approximately two and one-half gallons of pure alcohol every year.

Today there are an estimated three million people suffering from alcoholism. It is one of the greatest social problems of our times. Many a man has said of alcohol, "I can take it or leave it alone." He usually says this when he is on his third or fourth drink in a row. But the chances are that he cannot. While he may not become an alcoholic, he will invariably drink more than when he started the habit. From an occasional social drinker, he develops into a moderate, and perhaps into a heavy, drinker. If man could control his drinking, much of the problem would be solved. Studies made over the past few years indicate that a large percentage of alcoholics began the use of intoxicating beverages in high school. This emphasizes the importance of understanding the problem and taking a definite stand early in life.

Alcohol is habit-forming and acts as a depressant on the central nervous system. It affects all the cells of the body, but the most startling effect is on the brain. It depresses the cortex, the higher centers of the brain, which control such functions as judgment, self-criticism, learning, and memory, and releases the lower parts of the brain from their customary control by the cortex. This makes the drinker less aware of his environment, changes his usual reactions, and blunts sensitivity to physical and emotional pain.

Alcohol is a high-calorie food. Distilled beverages, while supplying substantial amounts of calories, are grossly deficient in proteins, vitamins, and minerals. Beer and wine contain some protein, and a few vitamins and minerals, but their principal nutritional content consists of calories. This poses a serious dietary problem because while the regular drinker gets energy from alcohol, he does not receive the other extremely important nutrients. The energy value of an eight-ounce glass of beer or one ounce of whiskey is about one hundred calories. His appetite is therefore dulled, and he won't eat as much good food as he should, so his diet goes out of balance. Immoderate drinkers often drink on an empty stomach, and later only toy with their dinner, or very likely skip it entirely. The definite conclusion is that people who drink too much don't eat properly and are thereby ruining their constitution.

Dangers of Alcohol

With regard to athletics, most American doctors, physical educators, coaches, and trainers condemn the use

of alcohol by athletes. Even in small amounts, alcohol has such a bad effect on co-ordination, timing, judgment, and any but the most simple muscle movements, that it is obviously of no help to the athlete. In their *Scientific Basis of Athletic Training*, Morehouse and Rash conclude that "Since relatively large quantities of alcohol are definitely harmful to skilled performance, and since the drug is habit-forming, its use by athletes cannot be recommended."

Alcohol is, as you know, an ever present danger when one is driving a motor vehicle. This is principally because tension is reduced and anxiety is diminished. A driver who has been drinking doesn't have the alertness required on our traffic-crowded highways. As a result, many accidents are basically caused by drunken driving, and penalties are becoming increasingly severe.

In addition to its adverse effect on diet in particular, and consequently on physical fitness in general, the drinking of alcoholic beverages is also very expensive, a factor which, surprisingly enough, is not often mentioned. The average drinker, as we have seen, consumes ten highballs a week or their equivalent. Figuring a highball at the modest price of fifty cents, that runs up to five dollars weekly, or \$260 a year. Many people drink much more than the average, perhaps twice that amount. Heavy drinkers may consume a half-dozen drinks daily, bringing the minimum cost to \$21 a week, totaling over \$1,000 annually.

These, then, are the facts with regard to the use of alcohol. As with smoking, discuss the matter with your

parents. Though they may drink themselves, that should have little or no bearing on what you will do, for when you go out into the world, you are on your own and legally and morally responsible for your actions. So consider the problem with great care. Visit the public library and read the authoritative books on drinking, and on smoking, too. And remember that alcohol, like tobacco, never made a man *more* physically fit.

Premarital Sex Relations

Another social problem which has been troubling mankind for centuries is venereal disease, which is presently on the increase. Gonorrhea and syphilis are infectious diseases, commonly contracted during sexual intercourse with an infected person, though they may be acquired in other ways. Due to the so-called "wonder drugs," there is a widespread misconception, especially among younger people, that venereal disease no longer has serious consequences. Penicillin is now being used for syphilis. However, treatment must be maintained for at least two years. In gonorrhea, failing the use of penicillin, sulphathiazole or sulphadiazine is prescribed, and these are effective in about 75 per cent of the cases. Venereal diseases continue to be a threat to health, nevertheless. Gonorrhea may lead to stricture of the urethra, a most painful condition; syphilis plays a part in diseases of the heart, and can cause general paralysis.

The most certain way of avoiding venereal disease is not to indulge in sexual relations outside of mar-

riage. Otherwise, one is always taking a chance of infection; and, too, there is the possibility of pregnancy with its usually tragic consequences. The best attitude is to organize your life so that you respect and think highly of the young women with whom you associate. In that way, you will not be selfish about your demands, and you will realize that the costs of indiscretion are far too high a price to pay. Society has not yet solved this problem. It can do so only through the men and women who believe that physical fitness is a worthy achievement.

chapter 9

Steps to a Full Life

“BE STRONG, and quit yourselves like men.” So it is written in the First Book of Samuel in the Old Testament. It is not sufficient to be physically fit; nor is strength alone enough. We must also quit ourselves like men. This book is concerned with health and strength because that is where you begin. They are the first steps to a full life. Let us review them and add the other steps, which lead to completeness of the individuality.

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| 1. Medical Check-ups | 6. Sports and Games |
| 2. Diet | 7. Social Recreation |
| 3. Personal Hygiene | 8. Social Relationships |
| 4. Exercise | 9. Mental Activities |
| 5. Rest | 10. Spiritual Aims |

We have covered all of the steps to physical fitness. By observing them you live more fully and enjoyably in your youth, and enrich your life as an adult. In forming healthful habits now, you can continue them almost automatically in the years ahead. By strengthening your body, you also strengthen your will, and you build up a firm defense against forces which would make you less of a man. No one can avoid temptation, but some can resist it, while others cannot, or will not. A physical fitness program is not something you follow today and forget tomorrow. There will be times in later life when you will be tempted to let things go. You may decide to give up proper exercise and diet. You might eat and drink too much, becoming fat and indolent. As a result, your work will suffer and your social relationships deteriorate. That is why it is important to form sensible habits now. Don't think of habits as "good" or "bad," but as "wise" or "unwise." Consider your actions from the view of an intelligent human being with a sound body and a sound mind. Do what is best for you and for your fellow man. Always think of "the other fellow." As a responsible member of human society, contribute your share to the common good. Though we are far from perfect, the benefits we enjoy are the contribution of those who gave of themselves for the betterment of humanity. Be such a man.

The Rewards of Physical Fitness

Physical fitness brings you close to that goal. Your body is the "house" in which you as an individual live.

It should take no urging to keep it in good condition. When you have done that, you are prepared for adult life and entitled to its rewards. One of the most important advantages of physical fitness is in the promotion of your career, whatever it may be. It goes without saying that the man who is in good physical condition has a strong point in his favor in getting a job. Whether it is a position as a construction engineer in South America, or a desk job in New York City, an applicant who radiates good health has the preference. How you think, and what you know, bear strong consideration, too, of course. But you start off on the right foot if you are physically fit. It stands to reason that any employer prefers to hire people who, barring unforeseen circumstances, can be depended on to stay on the job. There is also the factor that a man who is in good health looks his best, whatever his stature or physiognomy may be.

Physical fitness is important in social relationships. The man who is healthily exuberant spreads good fellowship. While he has developed his body, he has also developed his mind. He has the wisdom to know that they work together in making the sum total of the man that he is. In his relationships with the opposite sex he has an advantage, too. Wholesome women are interested in wholesome men. They look for a mate who has character and ideals. His personality intrigues them. And basically they are also concerned with a man who is, intellectually and physically, competent to become the father of their children. A mother loves her children, whether they be weak or strong. But if

they begin life in good health, she has much to be thankful for.

In being physically fit, you have a larger appreciation of life. You are more sensitive to its needs and desires. Your imagination readily responds to its many fascinations and possibilities. You appraise a man and judge him for what he is. He may have an infirmity, but you credit him for the care he has taken of the body that he possesses. You are physically fit, insofar as your constitution allows. You have become strong because you have willed it so. That same power within you makes you a better man in every other aspect of life. You find added strength in the immeasurable world of the spirit. You give of yourself to your family, your community, your country, and to God. All this you do because, in your youth, you took good care of your body, the citadel in which your spirit resides.

Afterword

This book has been published for young people everywhere by the Publication Department of the Young Men's Christian Associations.

The YMCA has been in existence for more than 100 years. Its developmental program of physical education has helped set standards in leadership, purposeful activity, and facilities in many communities. It has shared its experience and co-operated with many other youth organizations and with public governmental, as well as voluntary, educational, recreational, and health groups. Each of these groups has a contribution to make in the lives of young people. The resources of all should help provide the know-how that can be utilized for personal development.

This book is a compilation of helpful information that has been tried and tested by experts. Use it as your guide to new levels of physical fitness and more effective living.

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